A Mixed Methods Study Investigating the Community Pharmacist's Role in Palliative Care

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Abstract

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Subject keywords: community pharmacist, pharmacy services, palliative care, end of life, out of hours, urgent care, anticipatory medicines, drugs, pharmaceutical services, prescriptions

There is little research investigating factors that facilitate or inhibit timely access to palliative care medicines from community pharmacies. Though palliative care is recognised within the UK government's strategy and community pharmacists are considered to have a role it is uncertain to what extent this aim is incorporated into local practice.

This thesis uses mixed methods to investigate the time taken to access palliative care medication from five community pharmacies in one area of England. The effect of prescription errors, stock availability and other factors is examined. Furthermore, semi-structured interviews with five community pharmacists and eleven other healthcare professionals explore medication access and the community pharmacist's role in palliative care using the Framework method.

Stock availability led to delays with one in five customers going to more than one pharmacy to get urgently required palliative care medications. Legal prescription errors were more common on computer generated prescriptions but did not lead to delays. Three subthemes were identified in accessing palliative care medicines: environment and resources; communication and collaboration; skills and knowledge.

The community pharmacist’s role in palliative care was limited due to reluctance from other healthcare professionals to share information, poor access to patient records and lack of integration into the primary healthcare team.

This study highlights implications for professionals, commissioners and providers to improve services for those trying to access palliative medication. Community pharmacies remain a largely untapped resource for supporting patients, relatives and carers towards the end of life in both cancer and other advanced life-limiting diseases.

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In the words of Mo Farah *'It has been a long journey, but if you dream and have the ambition and want to work hard, then you can achieve.'*

List of Publications and Presentations

Parts of this work have been presented at conferences and workshops, the abstracts of which are published in the following journals and abstract books.

1. E Miller, A Blenkinsopp, J Morgan, C Wong. Developing a research protocol for investigating community pharmacy palliative care services: focusing on the patient, not just the prescription. (Poster presentation at the University of Bradford Faculty of Life Sciences research and development open day 31st May 2016 and oral presentation at the University of Bradford Life Sciences postgraduate mini-conference 1st June 2016, Bradford)

2. Elizabeth Miller, Julie D Morgan, Alison Blenkinsopp, Christina Wong. Are subcutaneous palliative medicines available and accessible: an out of hours (OOH) audit in Sheffield. *BMJ Supportive & Palliative Care* 2016, 6 (3) 407; DOI: 10.1136/bmjspcare-2016-001204.60 (Poster presentation at the Royal Society of Medicine/ Marie Curie Research Conference 19th October 2016, London)

3. E Miller, A Blenkinsopp, J Morgan, C Wong. Supporting timely access to medicines at the end of life: What is the community pharmacist's role? (Mini-conference at the University of Bradford Faculty of Life Sciences research and development open day 7th June 2017, Bradford)

4. Elizabeth Miller, Julie Morgan, Alison Blenkinsopp. Do prescribing errors impact on access to urgent palliative medicines from community pharmacies? A quantitative study in Sheffield. *International Journal of Pharmacy Practice* 2017, 25 (Suppl. 2), pp16-17. (Poster presentation at RPS Winter Summit 2017, London)

5. Elizabeth Miller, Julie D Morgan, Alison Blenkinsopp. ‘Have you got the drugs?’ A survey of customers accessing medicines from community pharmacies in Sheffield. *BMJ Supportive and Palliative Care* 2018, 8 (Suppl. 1), A12-A13; DOI:10.1136/bmjspcare-2018-ASPabstracts.32. (Poster presentation and winner of best AHP Abstract Prize at The APM’s Annual Supportive and Palliative Care Conference 2018, Bournemouth)

6. Elizabeth Miller, Julie D Morgan, Christina Wong, Alison Blenkinsopp. What is the community pharmacist’s role in palliative care: view of healthcare professionals within a UK city. *BMJ Supportive and Palliative Care* 2018, 8 (Suppl. 1), A4; DOI:10.1136/bmjspcare-2018-ASPabstracts.9 (Oral presentation at The APM’s Annual Supportive and Palliative Care Conference 2018, Bournemouth)

7. E Miller, J. D. Morgan, C Wong and A. Blenkinsopp. A mixed methods evaluation of factors impacting on the community pharmacist’s role in providing access to palliative medicines in Sheffield, UK: incorporating pharmacist, GP and other healthcare professional views. *International Journal of Pharmacy Practice,* 26 (Suppl. 1), pp 29-30. (Oral presentation at Health Services Research and Pharmacy Practice Conference 2018, Newcastle)

8. Elizabeth Miller. A mixed methods investigation of community pharmacists’ delivery of palliative care services. (Final report to Pharmacy Research UK 2018)

9. Elizabeth Miller, Julie D. Morgan, Alison Blenkinsopp. How timely is access to palliative care medicines in the community: a mixed methods study in a UK city. (Publication in progress)

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British National Formulary (BNF)

A UK pharmaceutical reference available as a book, app or online reference, providing advice and guidance on prescribing medicines on the NHS. It includes information on prescribing controlled drugs and in palliative care.

Chronic Medication Service (CMS)

A community pharmacy contractual service in Scotland that combines pharmaceutical care planning and repeat dispensing. Pharmaceutical care planning can include patients with palliative care needs.

Clinical Commissioning Groups (CCGs)

NHS organisations in England created following the Social Care Act in 2012. CCGs are responsible for planning, commissioning and monitoring healthcare provision for their local population. They replace Primary Care Trusts (PCTs) that were abolished in April 2013.

Community Pharmacist

A registered healthcare professional working in a community pharmacy. Traditionally community pharmacists dispense prescriptions issued by medical doctors but are increasingly taking on more clinical roles.

Community Pharmacy Clinical Services

A term used for the increasing number of direct patient care activities in community pharmacy beyond the traditional role of dispensing. These may include health screening, public health, medicines use reviews and pharmacist prescribing. An independent review of community pharmacy clinical services was completed in 2006 (Murray 2016).

EBSCOhost

An online reference system accessible via the intranet that provides access to research databases from information providers including Medline.

Formulary

An agreed list of drugs based on guidelines or evidence, which can support access to treatment and familiarisation.

Gold Standards Framework (GSF)

A framework for generalist staff and organisations that improves the quality and co-ordination of care for those near the end of life. The GSF has been proven to be cost efficient and improve patient outcomes.

GP Access Fund (formerly the Prime Ministers Challenge Fund)

A fund established in 2013 by the former Prime Minister to improve access to general practice and provide innovative primary care services consisting of two waves providing £150 million over 57 pilots and covering over a third of the population of England.

GP Pharmacists or Pharmacists in GP Practices

Clinical pharmacists working in GP practices as part of the General Practice Forward View programme, who resolve medicines issues, manage patients with long-term conditions and consult and treat patients.

Healthcare Professional (HCP)

Someone who has undergone a period of training and is qualified and accredited to provide healthcare, for example, a doctor, nurse, pharmacist.

Intermediate Care

Step down care provision following hospital discharge that provides short term care support and rehabilitation to patients. Intermediate care teams include a range of NHS healthcare professionals who work together with social care support agencies or voluntary organisations to look after people in their own home.

Medicines Use Review (MUR)

An advanced service within the national community pharmacy contract in England where accredited pharmacists undertake a structured adherence review targeting certain groups of people on multiple medications.

New Medicines Service (NMS)

An advanced service within the national community pharmacy contract in England to support people newly prescribed a medicine for certain long-term conditions by their GP or post-discharge from a hospital.

NHS choices website

An on-line service where patients can find out information on and the location of health services including pharmacies. They can also access information on different conditions, healthy living, care and support as well as manage electronic referrals.

National Institute for Health and Care Excellence (NICE)

Provides advice, guidance and standards for health, public health and social care professionals in the UK.

Nomad®/Medication Dosage System (MDS)

Weekly blister pack of regular medicines that are dispensed into compartments by a pharmacy.

Prescription Item

Each single item written on an FP10 prescription form. Each prescription form may include one or more prescription items.

Primary Care Trusts (PCTs)

Primary Care Trusts (PCTs) were statutory bodies up until April 2013 responsible for NHS services across a defined geographical location. They commissioned local pharmacy services including some of those now commissioned by local authorities, NHS England and CCGs.

Signposting

Signposting is an essential service under the terms of the community pharmacy contract. Pharmacies can refer customers for additional health and social care support from a range of NHS healthcare professionals, social services and voluntary organisations.

Specials

‘Specials’ are special-order unlicensed medicines manufactured to meet the needs of an individual patient.

SystmOne

A clinical computer system used in general practice and primary care teams, which is centrally hosted and is one of the accredited systems in the NHS.

Abbreviations

ACLF	Advanced to Consultant Level Framework
ASHP	American Society of Health-System Pharmacists
ASPCP	Association of Supportive and Palliative Care Pharmacy
BMJ	British Medical Journal
BNF	British National Formulary
CCG	Clinical Commissioning Group
CDs	Controlled Drugs
cHCP	Community Healthcare Professional
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CMS	Chronic Medication Service
COPD	Chronic Obstructive Pulmonary Disease
CP	Community Pharmacist
CPD	Continuing Professional Development
CPPQ	Community Pharmacy Patient Questionnaire
CPS	Community Pharmacy Sheffield
DH	Department of Health
DN	District Nurse
DNACPR	Do Not Attempt Cardiopulmonary Resuscitation Order
DPharm	Doctor of Pharmacy

EOLC	End of Life Care
EPP	Expert Professional Practice
EPS	Electronic Prescription Service
GP	General Medical Practitioner
GPhC	General Pharmaceutical Council
GSF	Gold Standards Framework
HCP	Healthcare Professional
HDAS	Healthcare Databases Advanced Search
HIV	Human Immunodeficiency Virus
HRA	Health Research Authority
HSCIC	Health and Social Care Information Centre
HSRPP	Health Services Research and Pharmacy Practice Conference
LCS	Locally Commissioned Service
LES	Local Enhanced Service
LPC	Local Pharmaceutical Committee
LPS	Local Pharmaceutical Services
LTCs	Long Term Conditions
MAS	Minor Ailment Scheme
MDS	Monitored Dosage System
MeSH	Medical Subject Headings
MHRA	Medicines Healthcare Regulatory Authority

MORG	Medicines Optimisation Research Group
MSc	Master of Science
MUR	Medicines Use Review
NatCen	National Centre for Social Research
NES	NHS Education for Scotland
NHS	National Health Service
NHSBSA	NHS Business Services Authority
NICE	National Institute for Health and Care Excellence
NIHR	National Institute for Health Research
NMP	Non-medical Prescriber
NMS	New Medicines Service
NPA	National Pharmacy Association
ONS	Office for National Statistics
OOH	Out of Hours
PHE	Public Health England
PICO	Population, Intervention, Comparison, Outcome
PCPN	Palliative Care Pharmacist's Network (PCPN)
PhD	Doctor of Philosophy
PMR	Patient Medication Record
PNA	Pharmaceutical Needs Assessment
Prn	*Pro re nata* -To be used if necessary

PRUK	Pharmacy Research UK
PSNC	Pharmaceutical Services Negotiating Committee
RCGP	Royal College of General Practitioners
R&D	Research and Development
REC	Research Ethics Committee
REF	Research Excellence Framework
RPS	Royal Pharmaceutical Society
SCR	Summary Care Record
SLH	St Luke's Hospice
SPC	Specialist Palliative Care
SRDU	Sheffield Research Development Unit
STH	Sheffield Teaching Hospitals
TARC	Therapies and Rehabilitation Centre
UK	United Kingdom
US	United States
WHO	World Health Organisation

Chapter 1: Introduction

1.1 Context of Palliative Care

Palliative care is a holistic approach to prevent suffering for those with serious advanced life-limiting disease addressing physical, psychosocial and emotional symptoms for both them and family members. Graham and Clark on behalf of The World Health Organisation (WHO) define palliative care as:

> "…*an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual*" Graham and Clark (2008)

Globally 40 million people need palliative care every year, however, only one in ten receives it, with only 50% of WHO member state countries having palliative care integrated within their healthcare systems in 2015 (WHO 2016). Furthermore, only 43% of WHO member state countries have access to oral morphine in primary care in more than 50% of pharmacies (WHO 2016). In 2014, the World Health Organisation passed a resolution to improve access to palliative care with an emphasis on primary and community/home-based care (WHO 2014). They called on every country to include palliative care as an essential component of modern healthcare and address barriers such as lack of resources, access to essential medicines and a lack of knowledge by healthcare professionals and members of the public on the benefits of palliative care.

One third of people in need of palliative care have cancer while others have:

- progressive life-limiting illnesses affecting the lungs, heart, liver, kidney, brain or
- HIV or
- drug resistant tuberculosis (WHO 2014).

As the proportion of older people grows together with increased life expectancy, there will be a ‘palliative care explosion.’ The challenge of an increased incidence of dementia with one in three elderly dying with dementia, and an increased incidence of cancer combined with life-prolonging treatments leading to people living longer with symptoms and the effects of cancer treatments, and multi-morbidity will lead to a greater demand for palliative care. There will also be an increased burden on caregivers requiring support both before and after death, and an increased need for institutionalised care (Bhatnagar and Gupta 2015).

Research demonstrates that early palliative care increases duration of patient survival and improves quality of life (Temel et al. 2010), supporting the need for early identification and integration of a palliative approach into the patient’s usual primary care team. The Gold Standards Framework (GSF) is a quality improvement programme in primary care that incorporates early identification, care assessments, planning and coordination of care for those in the last year of life (Clifford et al. 2016). Primary care teams that participate in the GSF programme have enabled more people to *‘live well and die well’* and halved the number of hospital admissions and hospital deaths while increasing the number of people dying in their usual place of care (Clifford et al. 2016: 2).

Palliative care research is not well funded. In the USA, less than 1% of government research funding is directed to palliative care (WHO 2014) and in the UK, palliative care research is under-represented in the UK Research Excellence Framework (REF) (Fordham and Noble 2016). With some countries only more recently integrating palliative care into their healthcare system and the great gap that exists between current unmet provision and future need, there is much to do to investigate new models of care that can support communities, caregivers and the growing number of patients in the future. Similarly, research in palliative care in the community pharmacy setting is limited, making it difficult to gather evidence and translate this into practice in different political and economic environments.

1.2 Palliative Care in UK

In England and Wales, there were 525,048 deaths in 2016, with cancer being the cause in 28.5% of registered deaths (Office for National Statistics (ONS) 2017). It is estimated that between 70-80% of deaths are likely to need palliative input (Hughes-Hallett et al. 2011) making the current estimate of need at about 393,786 patients (using the midpoint of 75%) per year. In 2011, the Secretary of State for Health in England commissioned an independent review to look at the funding of palliative care for adults and children in England. It was estimated within the palliative care funding review that 92,000 patients in England had unmet palliative care needs (Hughes-Hallet et al. 2011). Need for palliative care is expected to increase in line with population changes, with one in twelve of the UK population being aged 80 or over by mid-2039 (ONS 2016).

The End of Life Care (EOLC) Strategy for England (Department of Health (DH) 2008a) sets out a promise for patients to be cared for in familiar surroundings with family and friends present. Similarly, the NHS England Five Year Forward View (NHS England 2014) states that end of life care will be increasingly provided in community settings. Over two thirds of patients across six countries in Europe including England have expressed a preference to die in the home environment (Higginson and Sen-Gupta 2000; Gomes et al. 2012); so primary care healthcare professionals will increasingly see end of life care as part of their day-to-day work. Changes in population demographics, advances in healthcare and greater demand for palliative care services will place increased pressure on general practitioners to support patients and their families near the end of life and through bereavement. To achieve this, there is a need to assess new models of care in order to increase collaboration in the provision of palliative and end of life services in the community, and improve community resilience.

Guidance published by the National Institute of Health and Care Excellence (NICE) has been developed to improve palliative care in adults, including

quality standards for the care of the dying (NICE 2017a), quality standards for end of life care for adults (NICE 2017b), pathways on opioids for pain relief in palliative care (NICE 2016), and guidance on care of the dying (NICE 2015). NICE quality standards describe high-quality care to improve the safety, effectiveness and experience of patients towards the end of life including timely access to medicines and consistent care at any time of day or night. There is, however, no published data worldwide on the time it takes to access palliative care medications in the community setting, or patients' and carers' experiences in accessing such medicines. For instance, there is no information on whether patients and carers receive an incomplete dispensing of their medication or are referred to another provider to access the medicines they need. This highlights a need for commissioners to include community pharmacists in the care pathway, allowing access to information about the patient's medical condition, care plan and preferences to ensure high-quality care (NICE 2017b).

Patients with progressive chronic illnesses may have an uncertain disease trajectory (Murray et al. 2005) meaning it may be difficult to predict when they will need end of life care medicines for symptom management. The unpredictable nature of this demand means that obtaining urgent medicines in a timely manner, especially from a community pharmacy, may be paramount to prevent a hospital admission.

1.3 Pharmacists in Palliative Care

Pharmacists working in palliative care are integral members of the hospice and palliative care interdisciplinary team, and make important contributions to reduce medication risks and improve clinical outcomes (Walker 2010; Wilson et al. 2011a). Their expertise and therapeutic knowledge of medicines supports patients who may be at high risk of medication related problems due to unlicensed use and complex regimes (Crawford 2008).

The specialist role of pharmacists working in palliative care is recognised in the US (Hernandez-Torres 2004; McCracken and Dole 2004; Walker 2010; Wilson et al. 2011b), UK (Austwick and Brooks 2003), Australia (Swetenham et al. 2014; Tait and Swetenham 2014) and some other developed countries (Gilbar and Stefaniuk 2002; Pawłowska et al. 2016). In the US, the American Society of Heath-System Pharmacists (ASHP) has produced guidelines on the diverse roles that pharmacists undertake within palliative and hospice care from direct patient care through to transitional care, collaborative working, advocacy, research and scholarly activities, optimising patient outcomes while maintaining fiscal responsibility (Herndon et al. 2016), and Walker et al. (2010b) provides 'Fifty reasons to love your palliative care pharmacist'. In the UK, the role of the pharmacist in palliative care has been recognised within the expert professional curricula (EPP) for advanced and specialist pharmacists in palliative care by the Royal Pharmaceutical Society (RPS) (RPS Faculty 2013). In Australia, the US and UK, the advanced practice role has been piloted with positive outcomes within home based palliative care teams (Hill 2007; Scholes 2010; Mellor 2014; Swetenham et al. 2014; Tait and Swetenham 2014). Likewise, a palliative care pharmacist within an ambulatory role evaluated positively in the US (Atayee et al. 2008) and within a hospital outpatient clinic in the UK (Austwick and Brooks 2003). Advanced practice roles have supported transitions of care to improve access to medicines at the end of life, facilitating a home death for those that choose this (Swetenham et al. 2014). Community palliative care pharmacist roles exist in the UK (Mellor 2014; Bartlett 2017: pers. comm., 21 September) (see Appendix A). However, there is no national funding and such roles are not widespread.

1.4 Community Pharmacy Services in the UK

Community pharmacists are highly trained healthcare professionals who provide direct patient care from a community or retail pharmacy without the need for an appointment. Pharmacists are recognised as playing an important role in the management of long-term conditions (LTCs), including

dementia, Chronic Obstructive Pulmonary Disease (COPD), and heart failure, and they are experts in medicines use; so can ensure the best outcomes for patients and minimise avoidable harm (RPS England 2016). It has been established that 79% of the population visit a pharmacy at least once a year, 37% visit a pharmacy at least once a month, and 75% of adults visit the same pharmacy all the time (Public Health England (PHE) and Local Government Association 2016). Pharmacies are often convenient for those that cannot easily access other health services. In England, 89.2% of the population live within a 20-minute walk of a community pharmacy, rising to 99.8% within the most deprived areas (Todd et al. 2014). This increases to 99% of the population who are able to access a community pharmacy within 20 minutes by car and 96% by walking or using public transport (Department of Health (DH) 2008b). There are over 11,500 community pharmacies in England, many of which are open extended hours and are highly accessible without the need for an appointment (Loader 2014). The current national pharmacy contract for NHS England & Wales was introduced in 2005 (DH 2005) and for the first time included clinical services alongside the traditional dispensing of prescriptions. NHS Pharmaceutical services in England and Wales are divided into three categories: essential services, advanced services and enhanced services. Pharmacy contractors must deliver all essential services before advanced or enhanced services can be provided. Advanced services such as Medicines Use Reviews (MURs) are contracted nationally while enhanced services including the provision of palliative care or specialist medicines and are often commissioned locally based on an identified need in a Pharmaceutical Needs Assessment (PNA). Further changes to the national pharmacy contract in England, announced in October 2016; included a Pharmacy Integration Fund to transform community pharmacy services in particular urgent and emergency care, as well as support community pharmacy workforce development (DH 2016). NHS Scotland contracts a range of pharmacy services including Minor Ailments Scheme (MAS) and Chronic Medication Service (CMS) for people who voluntarily register with their pharmacy as well as enhanced and locally negotiated services. Local Scottish NHS Boards commission local services

including networks of community pharmacies participating in the provision of palliative care.

Information on local pharmacies, their opening hours, location, address and phone number is available on the NHS choices website, which provides a directory of NHS services in England as well as information on a range of health conditions and care options (UK Government 2017). Pharmacies self-manage the content and can receive a quality payment for updating criteria including the hours of opening and available services (Pharmaceutical Services Negotiating Committee (PSNC) 2017) but access to palliative medicines is not listed on the NHS choices website.

1.5 Community Pharmacists and Palliative Care

Community pharmacists are integral to providing joined up services as reflected within the Royal College of General Practitioners (RCGP) and Royal Pharmaceutical Society (RPS) joint statement on 'Breaking down the barriers – how community pharmacists and GPs can work together to improve patient care' (RPS and RCGP 2011: 2) that recommends:

> *'Community Pharmacists working with general practices and specialist palliative care teams ensure reliable and prompt medicine supply, and supportive advice (especially about analgesia) for patients, lay carers and other members of the health care team'.*

There has been little further mention of community pharmacists within national strategic documents in England or how the vision laid by the RCGP and RPS will be achieved. Only recently has there been some recognition of community pharmacists' potential role within the RPS England *Improving Care for Long Term Conditions* (2016) that suggests networks of pharmacists could be established to provide access to palliative care medicines and have specialist expertise. By contrast, there is some evidence supporting the community pharmacists' role in palliative care in the US and

Australia (Atayee et al. 2008; Jiwa no date) as well as in the UK (Needham 2002; Akram et al. 2012; Bennie et al. 2012); however, much of this work has not been published within peer-reviewed journals.

Within England there is no nationally commissioned access to palliative care medicines service but local NHS England teams can commission a local enhanced service (LES) from community pharmacies under a standard NHS contract to provide 'on demand access to specialist drugs' as defined within The Pharmaceutical Services (Advanced and Enhanced Services) (England) Directions (DH 2013). The purpose of such a service is to provide seven-day access to urgent palliative care medicines near the end of life from commissioned pharmacies; this may include extended hours and on-call out-of-hours (OOH) cover. Palliative care services can also be commissioned from other local commissioners including CCGs, Local Authorities and Local Health Boards depending on whether NHS or joint budgets are held; however, these are referred to as Locally Commissioned Services (LCS) and not enhanced services. A nationally agreed template for 'on demand availability of specialist drugs' developed by the Pharmaceutical Services Negotiating Committee (PSNC), Department of Health and NHS Employers (2005) is available for contracting palliative care medicines on the PSNC website. Local Pharmaceutical Committee (LPCs), pharmacy contractors and commissioners can also develop their own specification according to local needs.

No reliable national data can be sourced on locally commissioned or enhanced palliative care services but the community pharmacy contractor organisation PSNC, collects some data from LPCs and makes it publicly available. The PSNC website includes a spreadsheet listing the geographical areas that commission 'on demand availability of specialist drugs (palliative care)' in England. Similarly, Community Pharmacy Wales and Local Health Boards in Scotland provide information on locally commissioned services in their respective areas. In England, 54 palliative care access schemes are listed on the PSNC website covering 68 geographical areas; some specify

cover OOHs when many pharmacies are closed (PSNC 2017b). Not all areas are covered and the list of commissioned services is not complete, for instance Sheffield provides a LCS but is not listed on the PSNC spreadsheet. It is likely the list underestimates the total number of schemes since it relies on LPC members to submit these for addition to the website. Some service specifications regarded as 'on demand availability of specialist drugs (palliative care)' on the PSNC spreadsheet include anticoagulation, intravenous antibiotics or vitamin K injection in addition to palliative care medicines (PSNC 2017b) so may not be specifically 'palliative'. Another source of national information covering 'on demand availability of specialist drugs' in England is available from NHS Digital, which lists 344 such enhanced schemes commissioned from community pharmacies in 2015/16 (NHS Digital 2016). Even though areas such as London, East and West Midlands, Lancashire and Greater Manchester have no 'on demand availability of specialist drugs' recorded on NHS Digital, such services are documented on the PSNC spreadsheet. This could be because NHS Digital only collects information on enhanced services commissioned through NHS England and not locally commissioned schemes. In a similar manner to the PSNC data, NHS Digital may include specialist medicines that are not specific to palliative care. Further to this, commissioning bodies may make alternate arrangements, for example: through GP OOH providers; hospital pharmacy departments; an on-call hospital or on-call community pharmacist rota, which are not designated enhanced services making it difficult to obtain a full picture of all services and areas covered.

1.6 Palliative Care in Sheffield

The study location was chosen for various reasons including: convenient location, good access to pharmacy services, higher than England death rate in hospital and a history of innovative community pharmacy services in the area.

A third of Sheffield households have one person living alone and 29,000 (12.6% of all households) have one lone elderly person. A fifth of all households comprise of people over 65 years. One third of households do not have access to a car or van (ONS 2011; Dabinett et al. 2016). In Sheffield, 53.8% of deaths occur in hospital compared to the England average of 50.7%, while 19.7% of deaths are at home and 19.4% in a care home. In Sheffield 50.0% of deaths for those 85 and over occur in hospital; higher than the England average of 48.8% (ONS 2014a; ONS 2014b) suggesting there is room to improve palliative and end of life care services in the city.

Sheffield has good access to community pharmacies. On average Sheffield pharmacies serve a population of 4,547 people; slightly lower than the England average of 4,654 per pharmacy, and there is at least one pharmacy in each of the 28 electoral wards. In Sheffield, 99.2% of residents live within one mile of a pharmacy and no GP practices are more than 0.5 miles from a pharmacy (Pharmaceutical Needs Assessment Steering Group 2015). Sheffield has a pro-active LPC with a history of innovation in community pharmacy services, being one of the first places in the UK to introduce a needle-exchange scheme to minimize harm for injecting drug users. The Sheffield LPC has worked with local pharmacies and commissioners to provide a wide range of public health, minor ailment, and care home services (CPS 2017) in addition to the nationally contracted pharmaceutical services. Furthermore in 2014, Sheffield community pharmacies were part of a proof of concept pilot to access the patient's summary care record (SCR) (PSNC 2015) with the decision being made to roll out access to all community pharmacies across England in 2015 (NHS Digital 2015). Being a pathfinder site for use of and access to patient treatment records has meant earlier implementation within the city with pilot pharmacies having had access to SCR for more than two years prior to this study taking place. This will allow the researcher to establish what impact if any SCR has on accessing palliative care medication particularly in the OOH period when it can be more difficult to contact the prescriber.

More recently, Community Pharmacy Sheffield (CPS) representing contractors within the Sheffield Health and Wellbeing Board has established a *living with and beyond cancer* programme in partnership with Macmillan Cancer Support. Within this scheme, pharmacists are trained to support patients going through or recovering from cancer treatment and its effects. Pharmacists can issue general sales list and pharmacy medicines to support patients with symptoms such as mucositis, dry eyes or skin thereby negating a need to visit the cancer treatment centre for supportive treatments (Freedman 2016). Though the scheme is for those living with and beyond cancer, many of these patients may have a large symptomatic burden resulting in palliative care needs or may be future users of the access to palliative care medicines service.

Sheffield has 19 pharmacies participating in a Locally Commissioned Service (LCS) to provide access to palliative medicines; this study providing an opportunity to review the LCS and how this was working in practice.

The researcher's knowledge of the local healthcare system, having worked in primary care, hospital and specialist palliative care in the city, supported access to gatekeepers and potential recruitment of participants onto the study. Furthermore, the study location was convenient for the researcher to access yet was at arm's length to minimise bias in conducting research in local healthcare system as the researcher was not employed or influenced by the participants.

1.7 Community Pharmacies in Sheffield and the Provision of Palliative Care

Sheffield has 128 pharmacy contractors, including three distance selling pharmacies, one essential small pharmacy and 19 community pharmacies participating in a Locally Commissioned Service (LCS) for access to palliative care medicines (Pharmaceutical Needs Assessment Steering Group 2015; Community Pharmacy Sheffield (CPS) 2017). They provide services to

563,700 people in the city of Sheffield (Dabinett et al. 2016) as well as those living across adjacent borders, visiting or working in Sheffield. The palliative care LCS includes at least one pharmacy within 17 out of 28 council wards in the city (Pharmaceutical Needs Assessment Steering Group 2015).

Sheffield pharmacies dispensed an average of 7,792[1] items per pharmacy per month compared to the England average of 6,628 in 2012-13 (NHS Digital 2016). Most pharmacies open between 8.30am – 9am Monday to Friday and close between 5pm - 6pm, with most also open on Saturdays and 28 are open on Sundays. There are seventeen 100-hour pharmacies as well as three pharmacies commissioned by the CCG providing an extended-hours service to cover bank holidays and Sundays (UK Government 2017). Patients can obtain prescriptions out-of-hours through the GP Collaborative (OOH service), the GP walk-in centre or from four new primary care OOH hubs established through the former Prime Minister's Challenge Fund, now called the GP Access Fund (NHS England 2015). Healthcare professionals can also access emergency medications including palliative care medications through the GP Collaborative, which has access to an on-call hospital pharmacist provided by the Sheffield Teaching Hospitals (STH) NHS Foundation Trust. In December 2016, shortly after the completion of Phase 1 data collection, the collaborative implemented direct access to palliative care packs for doctors working within the service.

In 2011, a LCS was piloted in two Sheffield pharmacies to assure availability of palliative care medicines during regular service hours and for an extended OOHs period. This service evaluated positively and was deemed cost effective (Tsoneva 2011) providing access to palliative care medicines seven days a week; so was subsequently rolled out to 19 community pharmacies across Sheffield by the Primary Care Trust, which was the commissioning body prior to more recent NHS changes. Although the service evaluation

[1] Figure excludes three distance selling pharmacies so is based on total of 125 pharmacies.

provided evidence of the number of times medicines were accessed and the activity data in the regular and OOHs periods, there was no information on whether medicines were available in a timely manner and there was insufficient data to determine whether patients or their carers had to visit more than one pharmacy to obtain their prescription. It was noted by Tsoneva (2011) that there did not appear to be a significant problem for patients accessing palliative care medicines that would require the commissioning of additional services. In addition, it appeared that an increase in prescriptions for midazolam and levomepromazine at one of the pharmacies may have been because patients or their carers had been signposted or referred to the 'palliative care pharmacy' (Tsoneva 2011). Since the service does not operate 24 hours a day, is not advertised in the local press, on the NHS choices website or promoted within the local palliative care directory, it is unclear whether referrals are being made. Currently, there is no mechanism to collect information on prescriptions to establish whether the carer had been referred to another pharmacy to get urgently needed items or received a part dispensing of their prescription items, requiring them to return for the balance.

Sheffield community pharmacies are establishing close working relationships with a linked GP practice through an enhanced integrated primary care model established through the second wave of the GP Access Fund (NHS England 2015) that received an award in 2016 for GP partnership working (CPS 2016). The model involves local community pharmacists working in neighbouring GP practices to provide a range of patient-facing and administrative services to improve medicines use and increase the number of GP appointments available (Kelly 2016). It is likely that increased joint working between GPs and community pharmacists will provide scope to identify and support patients with more complex needs, which could include those receiving palliative care or who are at risk of deteriorating. Joint working between community pharmacists and GP practices is likely to increase trust between the professional groups and may provide a route for pharmacy teams into local commissioning and collaborative working.

Electronic Prescribing Analysis and CosT (ePACT) data from the NHS prescription services information database for the Sheffield Clinical Commissioning Group suggests there is room for improvement in the prescribing of drugs at the end of life. For example, midazolam, which is used for agitation and restlessness in the terminal phase, should be prescribed as 10mg/2ml to allow higher doses to be administered within palliative care. Yet electronic prescribing (ePACT) data shows that 24.77% of midazolam prescriptions for the 12 months to August 2015 (NHSBSA 2015) were for strengths not recommended in palliative care and not on the Sheffield community pharmacy palliative care stock list. During the evaluation of the pilot palliative scheme, LCS demand for several items not on the palliative list was as high as for items that were on the list. For example, there were 598 requests for diamorphine 5mg and 622 requests for diamorphine 10mg ampoules but only the 10mg strength was on the Sheffield community pharmacy palliative stock list at the time (Tsoneva 2011). This may have been due to national stock shortages affecting some strengths of diamorphine where supplies have been difficult to access in the past (Hall 2006). Following the service evaluation, it was deemed necessary to add the lower strength of diamorphine to the palliative care medications stock list as well as the higher strength. When medications are requested that are not on the recommended stock list this can lead to delays where the commissioned pharmacies do not hold the medications in stock. This can subsequently lead to poor access for the patient and a poor experience for the family carer who may have to leave the patient to run around and fetch drugs. It could also manifest in pain and other unrelieved symptoms where the patient is unable to take or access other medication.

1.8 Community Pharmacist Involvement – Facilitators and Barriers

Community pharmacists are not considered part of the primary care interdisciplinary team by GPs and other healthcare professionals (Ise et al. 2010; O'Connor et al. 2011b), despite being easily accessible (Loader 2014) and having a primary relationship with patients, families and carers

(O'Connor et al. 2011a). As mentioned previously, Sheffield pharmacies are participating in the GP Access Fund increasing the number of pharmacists who work within local GP practices (ibid). This is likely to improve relationships and integration of pharmacists within the primary healthcare team.

Greater involvement by community pharmacists could support the increasing number of patients with palliative care needs; a vision supported by O'Connor et al. (2011b) and Savage et al. (2012) who envisage pharmacists working collaboratively with GPs and nurses embedded in the palliative care team. Much of this is already happening in Scotland where networks of community pharmacies are supported by Macmillan Pharmacist Facilitators to provide enhanced access to palliative care medications (Bennie et al. 2012). Likewise, it is a vision for the RPS in *Improving care for people with Long Term Conditions* (RPS England 2016) to see networks of pharmacies having expertise in this area of practice.

An advantage of pharmacies is that pharmacy-support staff often reflect the neighbourhood where they are based, which could mean staff speak more than one language helping them to communicate and build relationships with customers. Pharmacists are considered trusted healthcare professionals in the local community, and provide ease of access to healthcare information and medicines without the need for an appointment to see a doctor (Thornley et al. 2017). The pharmacist's on-going relationship with their regular patients allows them to engage and support patients in a range of healthcare services other than just supplying medicines. Pharmacies are also businesses and may see the economic benefits of engaging with palliative care patients to provide daily aids to living. Primary care commissioners have been challenged to find new models to help support healthcare (Loader 2014), which provides the impetus for upskilling alternative providers such as pharmacy teams in the face of the current workforce crisis within GP practice. Providing support for the increasing number of patients with palliative care

needs could allow a home death for those that desire this, having economic benefits due to a reduced number of hospital admissions.

Research suggests that incorrectly written or illegible prescriptions impinge on the pharmacists' delivery of palliative care services (Lucey et al. 2008), and prescriptions that do not meet the legal requirements cause ethical dilemmas (Akram et al. 2012), particularly OOHs. There is no routinely collected data or published studies on incorrect or illegible prescriptions available and there are no published studies. Lucey and colleagues (2008) in Ireland found that 31.5% of responses in a survey of 168 GPs and pharmacists in North Dublin experienced delays due to incorrectly written palliative care prescriptions, and 17% reported delays with illegible prescriptions; however, no specific prescription data was audited and the response rate was low. In an unpublished study of 850 CD prescriptions by Stuart (2013), prescribing errors were detected in one out of every eight controlled drug prescriptions with half of the errors in prescriptions requesting injectable palliative care medications. There is an increasing move to issue computerised prescriptions, including within OOH providers; however, the impact of this change on CD prescribing is unknown.

Lack of access to patient clinical records has been identified as a barrier to community pharmacists' input in palliative care (Ise et al. 2010; Akram et al. 2012; Savage et al. 2012); however, as Sheffield community pharmacies have access to the patient's SCR where consent is provided, this could help resolve prescription queries supporting timely access to medicines especially in the OOH period.

Community pharmacists are not currently included within GP practice multidisciplinary palliative care case review meetings (O'Connor et al. 2011b; Akram et al. 2012; Savage et al. 2012). Their physical and professional isolation can make it difficult to attend such meetings and collaborate with other primary healthcare professionals (Bradley et al. 2008; Akram et al.

2012). Since a number of Sheffield community pharmacists provide an in-reach service to GP practices, this may help to break down professional barriers, support collaboration, and enhance the community pharmacists' clinical role in patient care. Whether this might have any effect on palliative care provision is uncertain.

1.9 Rationale for this study

There is a lack of research and understanding of how community pharmacists contribute to and collaborate in the care of palliative care patients in the primary healthcare team. This study plans to explore the community pharmacist's role in providing timely access to palliative care medicines, and investigate the pharmacists' and other healthcare professional's experiences and perspectives to make recommendations for future service provision and development.

Creswell (2007) and Silverman (2010) suggest having a statement of purpose to clarify the intent of the study. The statement of purpose for this study is as follows:

> The purpose of this two-phase, sequential mixed methods study will be to collect quantitative data on palliative care prescriptions presented to a purposive sample of community pharmacies in Sheffield. In the study, pharmacy logs will be used to identify factors associated with a delay in supplying palliative care medicines. In the second phase of the study, qualitative interviews with a sample of community pharmacists and healthcare professionals providing palliative care services will further explore the experiences of team members to understand those factors that facilitate or limit the community pharmacists' contribution to palliative care.

It was hoped to specifically include clinical services such as Medicines Use Reviews (MURs) to determine barriers to use, and whether patients or carers

found them helpful in the palliative care situation; however, as none of the clinical services in the current national community pharmacy contract include palliative medications or analgesics within the target groups, it would not be possible to undertake such a study without additional resources. It was felt that through in-depth interviewing of the pharmacists in the study, it would be possible to investigate any emergent themes related to the provision or lack of provision of nationally contracted clinical services in order to establish if there may be an effect on patients and their carers.

1.10 Aims and Objectives

This study seeks to answer the question 'What is the community pharmacist's role in the delivery of palliative care services'.

Research aim

The aim of this research is to investigate the delivery of palliative care services by community pharmacists in Sheffield to make recommendations to commissioners to improve local services.

Research objectives

The study will be conducted in two phases; Phase 1 will collect quantitative data from purposively chosen community pharmacies and Phase 2 will involve qualitative interviews with community pharmacists and other healthcare professionals. Specific objectives within each phase of the study are set out below.

Phase 1 objectives:

- Investigate the prevalence of prescribing errors on palliative care prescriptions presented to a sample of community pharmacies.

- Explore whether the prescription error rate varies according to the practice, prescriber status, or the nature of the prescription.
- Establish whether errors on palliative care prescriptions are associated with time delays in obtaining urgent palliative care medicines.
- Establish the maximum waiting time for palliative care medications from the community pharmacy setting.
- Establish what processes exist for patient referral when palliative care medicines are not available.

Phase 2 objectives:

- Identify factors from Phase 1 of the study causing delays in obtaining palliative medicines.
- Clarify factors from Phase 1 of the study that facilitate or limit the community pharmacists' involvement in providing palliative care services.
- Determine whether community pharmacies within an enhanced palliative care service fulfil more than a supply function.
- Explore the pharmacists' perceptions and experiences in the delivery of palliative care services.
- Explore whether the delivery of palliative care services within pharmacies has any effect on community pharmacy staff.
- Explore the community pharmacists' current and future role in palliative care according to the views of pharmacists and other healthcare professionals.

- Make recommendations to improve the pharmaceutical care of palliative care patients and processes for obtaining urgent palliative care medication.

Chapter 2: Literature Review

2.1 Overview

This chapter presents the findings following a search of published and unpublished literature in answer to the research question *what is known about the community pharmacist's role in the delivery of palliative care?* The literature review includes studies that directly relate to the research question as well as other literature with themes related to the question.

The search strategy is described following which there is a narrative review of the published studies in terms of the methods and quality and how that relates to the proposed study. The purpose of the chapter is to determine what is currently known on the subject and to identify and highlight any gaps in the published literature.

2.2 Introduction to Literature Review Methods

There are many ways of conducting a literature review each of which has an associated method and reporting style. The choice of the method will depend on the associated time and resources available. Fourteen types of literature review have been described by Grant and Booth (2009) according to an analytical framework on the search, appraisal, synthesis and analysis methods used. Where studies are quantitative a meta-analysis can be performed to combine results and assess the quality of the trials. Where limited time is available a rapid or scoping review can be performed. A systematic review seeks to answer the question using a systematic search and appraisal method based on criteria such as the CONsolidated Standards Of Reporting Trials (CONSORT) statement (Schulz et al. 2010) and is considered the most reliable method of reviewing the evidence to reduce bias (Higgins and Green 2011). The method for conducting a systematic review is published in the Cochrane Handbook for Systematic Reviews of Interventions

(2011) and systematic reviews are published in the *Cochrane Database of Systematic Reviews* library.

Very few published studies are available looking at community pharmacists' involvement in palliative care. Many of the reports found are observational studies, not developed as clinical trials with quality assessment criteria or specific outcome data, and use a range of methods therefore prohibiting the comparison of findings. The paucity and heterogeneity of published studies together with inconsistent methods means there would be insufficient power to reach a conclusion within a more formal systematic review. Therefore, a systematic approach to the literature search has been undertaken to inform a narrative literature review of the evidence.

2.3 Methods

A comprehensive literature search was undertaken to ascertain what is known about the community pharmacists' role in the delivery of palliative care. Databases were accessed from the NHS NICE (National Institute for Health and Care Excellence) evidence gateway (www.evidence.nhs.uk) using the Health Databases Advanced Search (HDAS). This allowed the researcher to access three nursing and management databases not available through the University of Bradford. The researcher also searched two electronic databases accessed via a personal login at the RPS (www.rpharms.com) as it was thought these may include articles specifically related to pharmacy services. Subject search terms (see table 2.1) were identified for a range of synonyms and keywords using the Participants, Interventions, Comparisons, Outcomes (PICO) criteria as recommended by Cochrane Collaboration (Higgins & Green, 2011). To increase the sensitivity of the results search terms were kept broad with population and intervention terms giving higher numbers of results. Limiters were applied according to the inclusion criteria to improve specificity. Specific search terms used for three medical and nursing health databases can be found in Appendix B.

Search terms were modified for other databases as per the thesaurus in each database.

Table 2.1 – Final Search Terms identified using PICO criteria (Cochrane Collaboration Handbook (Higgins and Green 2011)

PICO category	Keywords and search terms
Population	Palliative care; terminal care; bereavement; terminally ill; terminal illness; dying; death; palliat*; terminal care; terminal stage; end-of-life; cancer palliative therapy; dying; palliat* stage; advanced cancer patient; life-limiting; progressive disease; carer medicine* support, bereavement support, infusion subcutaneous; infusion therapy; subcutaneous injection; infusion pump; syringe driver; syringe pump; just in case; anticipatory medic*; anticipatory prescribing; pre-emptive.
Intervention 1	Prescription*; prescription drug*; drug therapy; opioid* analgesic; drugs; narcotic; morphine; diamorphine; fentanyl; alfentanil; oxycodone; hydromorphone; haloperidol; hyoscine; glycopyrrolate; midazolam; levomepromazine; cyclizine; metoclopramide.
Intervention 2 (major heading)	Community pharmac*; pharmacist*; community pharmacist; pharmacies; pharmacy; chemist; retail pharmacy, community pharmacy service*; pharmaceutical service* professional role; medicine* review, Medicines use review or MUR, New Medicines Service or NMS, pharmacy technician; pharmacist attitude*; pharmacy ethics.
Comparison	Any
Outcomes of Interest	Any

Footnote: *truncation symbol used in HDAS to retrieve results with a common root phrase.

The search was carried out by the researcher who has received training on literature searching through EBSCOhost, University of Bradford and RPS libraries as well as through her role as a clinical pharmacist. The University of Bradford subject librarian provided support in assessing the completeness and quality of the search strategy. The search was originally conducted in March 2017 across eleven electronic databases from date of inception to current date. An alert was set up to pick up any additional material published after the search was conducted. The search strategy was saved and rerun in September 2017 within CINAHL, MEDLINE® and EMBASE® to provide an update prior to thesis submission.

The eleven electronic databases included below were chosen because they collate peer-reviewed journals within the fora of palliative and pharmacy research including subject titles and publication titles of relevant palliative care and/or pharmacy journals.

AMED (The Allied and Complementary Medicine Database):1995 to 2017

BNI (British Nursing Index): 1992 to 2017

CINAHL (Cumulative Index to Nursing and Allied Health Literature) with full text: 1981 to 2017

Cochrane Database of Systematic Reviews: 2005 to 2017

EMBASE (Excerpta Medica Database): 1974 to 2017

HBE (Health Business Elite): 1922 to 2017

HMIC (Health Management Information Consortium): 1979 to 2017

MEDLINE Complete: 1857 to 2017

PsychINFO: 1806 to 2017

Biomedical Reference Collection Corporate edition: from inception to 2017

International Pharmaceutical Abstracts: from inception to 2017

The search was limited to research papers published in English in human adults and includes articles in peer-reviewed journals as well as conference abstracts and dissertations ("grey literature"). This was to ensure the review picked up potential unpublished material including conference posters and studies in progress where it was thought much relevant material may be found. Opinion pieces, editorials, newspaper articles and books were excluded from the search as they would not provide data on primary studies. Due to the large number of initial results only studies published since 2005 were examined, which is when the new community pharmacy contract was implemented in England, as it was thought studies prior to this may be less relevant. Results in Medline were limited within major headings of intervention 2 (pharmacists, prescriptions etc.) as set out in Appendix B to exclude hospital treatments and chronic diseases.

Database searches resulted in a total of 710 results (see figure 2.1), which were extracted to EndNote x8.0.1® bibliographic database where they were managed and 26 duplicates were removed leaving 684 articles. Titles and abstracts were screened against the study objectives to check for relevancy to the study. Articles were excluded if they were opinion pieces, editorials, and obituaries or learning articles, were related to drug misuse services, non-palliative conditions or were based in a specialist, hospice or hospital setting. The flow chart of study selection indicating reasons for study exclusion are provided in figure 2.1.

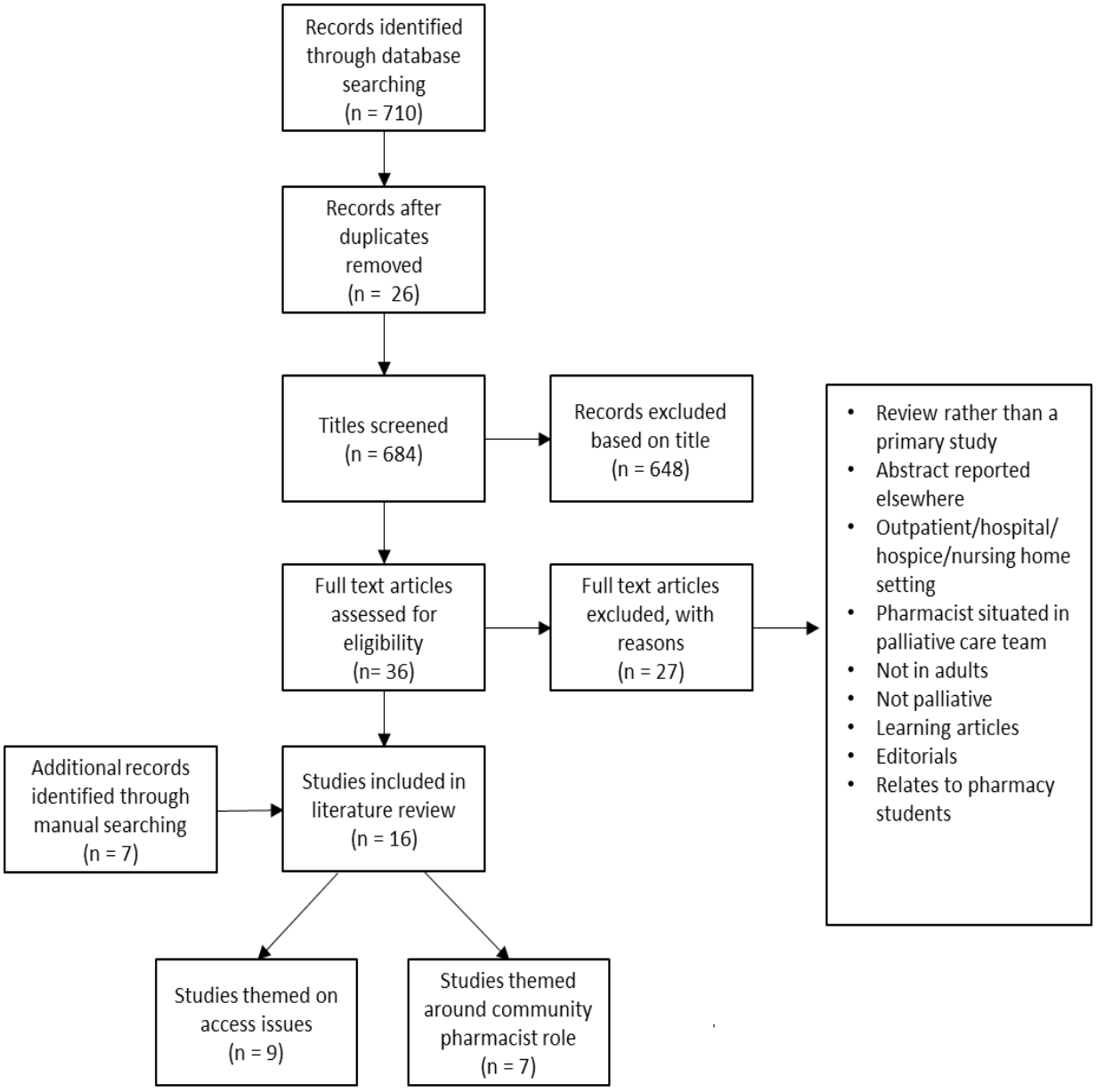
Due to the small number of relevant studies the researcher conducted a manual search of references and citations linked to these papers and hand-searched other published material by the lead author as well as UK Universities and national charities involved in pharmacy and/or palliative care research. Further to this a search of UK, US, and Australian journals where palliative care pharmacy practice research conference abstracts are printed was undertaken as these were most likely to provide information on studies

in progress. This included the International Journal of Pharmacy Practice (*Int. J. Pharm. Pract*.), American Journal of Health-System Pharmacy (*Am. J. Health. Syst. Pharm*.), Australian Palliative Care Conference website, Pharmaceutical Journal (*Pharm. J*.) and British Medical Journal on Supportive and Palliative and Care (*BMJ Support. Palliat. Care*).

The researcher also contacted national pharmacy organisations and monitoring schemes including Pharmaceutical Services Negotiating Committee (PSNC), PharmOutcomes, National Pharmaceutical Association (NPA), RPS and members of the Association of Supportive and Palliative Care Pharmacy (ASPCP) to find relevant grey literature and service evaluations. Personal communications relating to data obtained are available in Appendix A where consent has been given.

Further to this a general search on palliative care or end of life policy statements from national UK organisations was undertaken in addition to research on prescribing errors in primary care and general reading on research inquiry and qualitative research.

Figure 2.1: Flow chart of study selection (from PRISMA Group; (Moher et al. 2009))



2.4 Search Results

The electronic search produced 710 results of which 26 were duplicates and 648 were not relevant to the research based on their title, for instance Buntzel et al. (2011) looked at use of complementary medicines in terminally ill patients, Austwick and Brooks (2003) looked at the pharmacist's input into a palliative care clinic in a hospital setting and Wright et al. (2016) discuss the introduction of a patient's own drugs scheme in a specialist palliative care inpatient unit. The remaining abstracts were reviewed with a further 27 being rejected. This included O'Connor et al. (2011b) which was an editorial piece, Tait and Swetenham (2014) which looks at the introduction of a pharmacist in an advanced practice role specialising in palliative care. The resulting nine studies were accessed and read in full.

Due to the lack of published research a further extensive review was conducted identifying non-published reports, as well as the views and experiences of patients and carers and other healthcare professionals on the community pharmacist's role within palliative care. Papers from a non-UK setting, strategic government and professional organisational papers on palliative and End of Life Care (EOLC) were also reviewed. This resulted in an additional seven studies that met the inclusion criteria including four reports evaluating the community pharmacists' role in palliative care commissioned by collaborating organisations with a University research team.

All studies were qualitative in nature or based on audit, service evaluation or survey methods. There were no interventional or controlled studies. A summary of the studies including the aims and objectives, study method, population, key findings and comments can be found in table 2.2. These have been divided into studies that discuss access to medicines and those on the community pharmacist's role.

Table 2.2: A review of studies from the literature search

Studies Focusing on Access to Medicines

Author, Year & Location	Aims/Objectives	Method	Population/ Sample	Key Findings	Comments
Akram et al. 2012; UK	Investigate current provision of palliative care services in NHS Greater Glasgow & Clyde (GGC) pharmacies and develop an action plan to improve services	Qualitative - Focus group interviews	35 pharmacists from Community Pharmacy Palliative Care (CPPC) Network in GGC	Medicines not on the palliative care list not routinely stocked in pharmacies. Difficulties with illegal prescriptions OOHs causing delay in supply. Lack of information causing difficulty in making supplies. Training of counter-staff to recognise palliative prescriptions to avoid unnecessary delays. Locum staff and some health professionals do not know how to access Network pharmacies.	Funding provided by national charity to appoint facilitators and improve pharmacy services may pose limitations on reproducibility and generalisability to other areas. Based on model pharmaceutical schemes in Scotland. NHS Scotland funds free access to national palliative care formulary.

Author, Year & Location	Aims/Objectives	Method	Population/ Sample	Key Findings	Comments
Bennett et al. 2008; UK	To identify differences in cancer pain management between younger & older adults in the community.	Descriptive observational study	58 adults ≥ 75 years and 32 adults ≤ 60 years referred to specialist palliative care	Experience and management of pain no different between younger and older cancer patients. 10% had difficulty obtaining prescriptions for analgesia, 7% ran out of analgesia, 75% of participants had contact with pharmacist in the previous 2 weeks while only 17% had seen a GP.	Patients at home drew on support from community nurses (district and palliative), pharmacists and family members in preference to GPs.
Bennie et al. 2013; UK	Palliative care patients and their carers knowledge of community pharmacy services and access to information on medicines	Qualitative focus group interviews	14 patients and 13 carers within Glasgow Health Board	Knowledge and awareness of community pharmacy services poor occurring through friends/family or in a crisis. Some participants had no regular contact with their pharmacist. Study showed preference to receive information face to face.	Limitations due to sample size and gender imbalance leading to under reporting in male participants.

Author, Year & Location	Aims/Objectives	Method	Population/ Sample	Key Findings	Comments
Faull et al. 2013; UK	Explore issues related to prescribing, dispensing and administering anticipatory medication for patients who want to die at home.	Qualitative - focus groups & interviews.	Focus groups (54) individual interviews (9) of purposively selected HCPs	Challenges included resourcing concerns, professional expertise/ experience, and relationships with patients and inter-professional working/ relationships. Communication, expertise and confidence seen as key factors in prescribing medicines at EOL.	Included 3 pharmacists – 1 in focus group and 2 in interviews.
Ise et al. 2010; Japan	Evaluate availability of narcotics in Japanese pharmacies, pharmacist difficulties and	Anonymous postal survey	Response from 1036/3000 Community Pharmacies (34.5% response rate)	50% of pharmacies dispensed narcotic prescriptions however 70% had fewer than 3 narcotic prescriptions per month.	Regulation of narcotics in Japan requires specific license which does not reflect UK regulations. Home care less widely accepted in Japan.

Author, Year & Location	Aims/Objectives	Method	Population/ Sample	Key Findings	Comments
Ise et al. 2010 (cont.)	strategies to make narcotics available			Pharmacists' lack of communication skills and inability to access patient information hinder provision of palliative care in the home environment	
Lucey et al. 2008; Ireland	Systems analysis of patients under SPC highlighting factors that delay access to medication.	Mixed methods – postal questionnaires and observational methods	268 GPs (47% response), 171 CPs (33% response), 57 patients (38.5% response)	Pharmacists and homecare nurses reported not stocking medications most likely factor to cause delay. GPs reported the need to clarify advice from homecare team as most likely to cause delay.	Some medicines not funded under the Irish healthcare scheme and so are not kept in pharmacy stock.

Author, Year & Location	Aims/Objectives	Method	Population/ Sample	Key Findings	Comments
MacRobbie et al. 2015; UK	CD audit to identify prevalence and nature of prescribing errors. Part of a service delivery and improvement programme	Audit form to collect data from pharmacy/GP dispensary	3 pharmacies and 4 GP dispensing practices in NHS Highland total of 352 prescriptions.	Legal errors were 3.9% and clinical errors 2.3% of all CD prescriptions. Legal errors related to dose not specified, total quantity not in words and figures and formulation. Error resolution was 15mins or less in over 60% of prescriptions and 30% were resolved in one hour. One prescription took over 24 hrs to resolve but was not urgent.	Used data collection form from Stuart (2013). Included all CDs except substance misuse and stimulants. Small number of sites in remote location including dispensing practices which could skew and potentially bias results
Tait et al. 2013; Australia	Baseline survey to quantify access to 13 palliative care medicines in South Australian community pharmacies	Observational study – postal survey	455 pharmacies - 23.7% response rate	Each pharmacy stocked an average of 3 of the 13 medicines (range 0-12). Thirteen (12.3%) of pharmacies had none of the medicines.	Low response rate. List of medicines from inpatient setting not reflective of essential medicines in community setting.

Author, Year & Location	Aims/Objectives	Method	Population/ Sample	Key Findings	Comments
Bennie et al. 2010; UK	Macmillan pharmacist facilitator project to assess gaps in service provision to inform a quality improvement programme.	Mixed methods – exploratory data analysis	Qualitative – focus and individual interviews of CPs, GPs, DNs, purposive sample of 5 paid and 16 family carers	Difficult for CP to identify palliative prescriptions, minimal or no clinical information transfer OOHs, difficulties prescribing & accessing unlicensed drugs, pharmacists lack of knowledge/confidence, lack of CD storage space, lack of continuity of care, medicines not on the palliative list/ or wrong strength. Changes in pharmacy staff on weekend, problems contacting GP to clarify/change prescription. Training and use of taxis to transfer medicines. Problems for carers with part supplies, anxiety leaving patient on own. Pharmacies, approachable and accessible.	Specific funding through Scottish pharmaceutical model scheme and Macmillan to support pharmacist facilitators to work with CPs. May not be reproducible without funding. Some carers had issues due to lack of transport others experienced excellent service as pharmacy delivered items. Pharmacies unable to share medicines due to changes in Medicines Healthcare Regulatory Authority (MHRA) wholesale licensing arrangements.

Studies on the theme of the community pharmacist's role

Author, Year & Location	Aims/Objectives	Method	Population/ Sample	Key Findings	Comments
Borgsteede et al. 2011; Netherlands	Knowledge of pharmacists on pain management and opioids, co-operation with physicians and barriers they experience to providing good EOLC.	Written questionnaire	Random sample of 412	Lack of knowledge may hamper pharmacists' contribution to improving palliative care.	Response rate 45%. Non-validated questionnaire with limited themes. Inclusion of physician assisted euthanasia which is not provided in UK. Potentially biased sample with full time pharmacists less likely to respond.

Author, Year & Location	Aims/Objectives	Method	Population/ Sample	Key Findings	Comments
Jiwa et al. no date; Australia	Exploring the role of the pharmacist in palliative care in order to implement palliative care medicines management reviews	Mixed methods – feasibility trial	13 pharmacists completed study on 40 patients. Focus groups and individual interviews with 54 pharmacists 44 nurses and 10 GPs across 4 Australian states.	Pharmacists made 145 recommendations of which 93% rated positive, 5% neutral and 3% negative by expert panel. Interviews showed lack of understanding and knowledge could lead to pharmacists feeling out of depth. GPs see pharmacists as limited to dispensing medicines and obtaining stocks. Pharmacists see role in medicines supply and supporting patients/carers. Nurses and pharmacists both positive that extending the role would be beneficial to patients.	Interrater variability of expert panel showed inconsistency. Unclear whether carers had separate interviews to other health care staff. Report not peer reviewed or published in journal.

Author, Year & Location	Aims/Objectives	Method	Population/ Sample	Key Findings	Comments
Needham et al. 2002; UK	Assess CP interventions in supporting palliative care patients	Non-randomised cohort study using panel assessment to review interventions	25 patients over 10 months. 130 interventions made by 15 pharmacists.	81% of interventions were judged by the panel as likely to be beneficial. 3% likely to be detrimental to patients' wellbeing, 6% deemed inappropriate, 8% could not be categorised by the expert panel and 2% of cases there was insufficient information available for categorisation.	30 (23%) of interventions excluded from the study due to lack of information. Unlikely to be reproducible study due to subjective nature of panel assessment. No evaluation of user perspective. Part-industry funded. Ethical approval not mentioned.
O'Connor et al. 2011a; Australia	Understand CPs understanding of effective communication for palliative care patients and carers and explore what	Multiple qualitative case study – 16 focus groups and 19 interviews	122 participants identified by purposive maximum variation sampling including	CPs identified the need for effective communication but saw difficult balance in responding to emotional needs and focusing on medication/busy pharmacy environment.	Focus on education of CPs. Saturation of themes and rigour of analysis measured. Variety of Healthcare

Author, Year & Location	Aims/Objectives	Method	Population/ Sample	Key Findings	Comments
O'Connor et al. 2011a; (cont.)	CPs need to facilitate effective communication		54 CPs from regional and metropolitan areas in Australia	CPs may lack strategies to deal with emotional distress and bereavement support	Professionals (HCPs) and carers included.
O'Connor et al. 2013; Australia	CPs attitudes towards palliative care in particular attitudes towards providing services and support for palliative care patients and predictors of attitudes to providing services and support.	Cross-sectional descriptive survey	250 CPs across Australia completed the survey	Pharmacists' knowledge and beliefs were predictors of positive attitudes to providing services and supports for palliative care patients. Building CPs knowledge and understanding of palliative care underpins a positive attitude and the provision of services and support to palliative care patients.	Response rate low 26%; may have resulted in a biased sample.

Author, Year & Location	Aims/Objectives	Method	Population/ Sample	Key Findings	Comments
Savage et al. 2012; UK	To describe pharmacists' place in cancer pain pathway; identify where pharmacists could support cancer patients medicines management and opportunities to improve communication with patients and healthcare professionals	Semi-structured interviews analysed using Framework method.	25 CPs in 3 areas of England	Access to palliative care medicines problematic, MURs rarely done. Limited patient or other healthcare professional contact regarding patient care. Pharmacists feel isolated from care team but aspired to do more. Variable knowledge on opioids. Pharmacists potentially inhibited by fear of discussing wider emotional and social aspects. Wide range of concerns raised by family members indicating unmet needs.	CPs from range of areas/types of pharmacies.

2.5 Findings from the Literature

The literature search revealed very little published research into community pharmacists' delivery of palliative care services with most studies being exploratory or qualitative in nature. Most of the studies were from the UK and Australia with only a minority of studies coming from Europe and Japan. No systematic reviews were found. Three unpublished studies were commissioned through Universities and one unpublished study was completed as part of an MSc qualification.

Three studies (Akram et al. 2012; Bennie et al. 2010; Bennie et al. 2012) evaluated the community pharmacists' experience of delivering palliative care and improving access within a community pharmacy palliative network developed under a Scottish model scheme for pharmaceutical care. This model was supported through external funding by a national UK charity and represents a difference in the UK devolved governments arrangements for funding of healthcare services and so is not reflective of the current NHS funding for pharmacy services in England. Nevertheless the research offers insight into barriers the pharmacists had to overcome to improve access to palliative care medicines and may be a positive model that could be adapted for implementation in other areas.

2.5.1 Responsiveness in provision of end of life drugs

The unpredictable nature of palliative care medication and the requirement to provide prompt supplies, particularly OOHs can cause frustration if pharmacists do not have adequate supplies available (Akram et al. 2012; Savage et al. 2012) This can be a problem with unlicensed medicines or if the prescription contains medicines not included on an approved stock list (Akram et al. 2012; Bennie et al. 2010; Tait et al. 2013). Bennie et al. (2010) and Savage et al. (2012) both found that doctors were not always aware of what was on the stock list and sometimes prescribed strengths not available in the pharmacies. This finding is replicated in prescribing data from Sheffield

CCG, which showed that for the twelve months to August 2015, 24.77% of midazolam prescriptions were for strengths not recommended in palliative care and not on the stock list (ePACT:NHSBSA 2014). Pharmacies may also be unaware of the existence of a specified list (Faull et al. 2013). Further delays may be triggered by the legality of prescriptions necessitating the pharmacist to make professional and ethical judgements in the pursuit of supporting patient care (Akram et al. 2012; Lucey et al. 2008; Savage et al. 2012). A survey of 168 pharmacists and GPs in primary care by Lucey et al. (2008) reported that 31.5% of respondents thought that palliative care prescriptions were written incorrectly. An MSc project by Stuart (2013) found that one in eight controlled drug prescriptions contained errors, 86% of which were legal errors particularly occurring during the OOH period. A further audit reported in MacRobbie et al. (2015) found 4% of controlled drug (CD) prescriptions contained illegal errors. This raises ethical dilemmas particularly when the prescriber cannot be contacted out-of-hours, causing delays in obtaining urgent palliative care medications. Further to this it is unclear whether criminalisation of dispensing errors, where pharmacists can be prosecuted for a dispensing error, and increased CD regulations after the Shipman murders (DH 2006) have affected the community pharmacists' involvement in palliative care.

2.5.2 Community pharmacist involvement in palliative care

2.5.2.1 Facilitators

Community pharmacists are said to be accessible with 99% of the population including those in the most deprived areas of England able to access a pharmacy within 20 minutes by car and 84% of all adults – 78% for health-related reasons - visiting a pharmacy each year (DH, 2008). In a study by Bennett et al. (2009) 75% of older palliative cancer patients reported they had contact with their pharmacist in the two weeks prior to their interview but only 17% had seen their GP.

2.5.2.2 Barriers

The research identified the following themes as barriers to the community pharmacists' involvement in palliative care;

- access to patient records and clinical information (Akram et al. 2012; Ise et al. 2010; Savage et al. 2012)
- reimbursement programmes (Walker 2010)
- education, knowledge and communication skills (Hussainy et al. 2006; Hussainy et al. 2010; Ise et al. 2010; Borgsteede et al. 2011; O'Connor et al. 2011a; Savage et al. 2012; O'Connor et al. 2013).
- Regulations surrounding the distribution and control of opioids also had a negative effect on access and stockholding in community pharmacies in Japan (Ise et al. 2010)

2.5.2.3 Communication

Despite it being identified that pharmacists can and should have greater involvement in palliative care and the need for better communication between GPs and community pharmacists, there seems to be a lack of international research regarding collaborating within this arena with pharmacists feeling isolated from the primary care team (Savage et al. 2012). GPs reported that the pharmacists' role was in medication dispensing and supply (Jiwa no date) and they seemed to have a lack of insight into the pharmacists' role of supporting patients and their carers. In contrast GPs in the US acknowledge the role of community pharmacists providing pain management and symptomatic advice as well as psychological support for palliative care patients in the home environment (Atayee et al. 2008). A subgroup of pharmacies in an Australian study were statistically more likely to hold stock of palliative care medications where they received information on the palliative status of a patient and greater communication from healthcare practitioners (Tait et al. 2013), a point that the authors regarded required further investigation.

2.5.2.4 Education and knowledge

Authors tend to agree that pharmacists' experiences in palliative care may be limited due to time pressures and a fear of getting involved in emotional issues for example when bereaved relatives visit the pharmacy (O'Connor et al. 2011a; Savage et al. 2012). Furthermore, a lack of information about the patient and their diagnosis can inhibit the pharmacists' interventions and clinical input in palliative care (Needham et al. 2002; Savage et al. 2012). Pharmacists are physically and professionally isolated from the multidisciplinary team within the GP practice; authors suggest that closer proximity and increased collaboration would enhance their involvement (Needham et al. 2002; Savage et al. 2012).

Researchers highlight the need for additional communication skills and training for community pharmacists to fulfil their role in palliative care (Needham et al. 2002; O'Connor et al. 2011a) as well as for pharmacy support staff (Akram et al. 2012; Bennie et al. 2013; Bennie et al. 2015). Sheffield pharmacy contractors participating in the service specification for palliative care medications must identify a responsible pharmacist to complete an e-learning pack provided by the Centre for Pharmacy Postgraduate Education (CPPE), though this would not necessarily cover all pharmacists or staff working in the pharmacy. It is not known whether this training or lack of training limits staff contribution without the necessary advanced communication skills. Studies of other healthcare professionals detail the need for specific educational programmes including communication skills training to enable them to undertake their role in palliative care (Gardiner et al. 2012a). This corresponds with other research where community pharmacists have requested the need for both palliative care and communication skills training as well as support in dealing with emotional issues (Akram et al. 2012; O'Connor et al. 2011b; Savage et al. 2012).

Misconceptions on the use of opioids in non-cancerous conditions may limit the pharmacists' contribution to palliative care. A study by Gardiner et al.

(2012b) showed that healthcare professionals did not administer opioids to COPD patients with dyspnoea as they misconceived that they could hasten death. Further concerns on the underuse of opioids in primary care were reported following the Harold Shipman murders (Gott et al. 2010). O'Connor et al. (2013) highlighted gaps in the community pharmacist's knowledge in palliative care including a misconception that oral morphine should not be used by people in respiratory distress and recommended specific education and continuing professional development in palliative care targeted towards community pharmacists.

Research has focused on evaluating community pharmacist interventions in palliative care (Needham 2002) or qualitatively looking at specific aspects of the pharmacists' role e.g. cancer pain (Savage et al. 2012), or communication issues (O'Connor et al. 2011a). There is no research focusing specifically on pharmacists providing an enhanced palliative care service who also have access to patient care records as in Sheffield, which was a pilot site for community pharmacy access to SCR.

2.5.2.5 GP and other healthcare professionals attitudes to the pharmacist's involvement in palliative care

GPs are seen to be the main authority on palliative care and prescribing (Bennie et al. 2013); however, nurses have an increasing role (Wilson et al. 2014; Payne et al. 2015). The importance of personal trusting relationships on which to facilitate palliative care and anticipatory prescribing communication within the primary care team has been previously stated (Faull et al. 2013; Wilson and Seymour 2017) however GPs tend to have a traditional view of the pharmacist's involvement in dispensing and supply of medication (Jiwa no date) and pharmacists rarely had contact with members of the primary care team (Savage et al. 2012). In the study by Jiwa (no date) GPs considered community pharmacists would not be able to understand the patient or carer's needs without experience in palliative care but the GPs also conceived that it was the pharmacists' role to focus on medications - though

this was not specifically related to palliative care. Where interprofessional collaboration occurs between GPs and community pharmacists this improves care (Gallagher and Gallagher 2012); however, this may rely on adequate remuneration, interprofessional education and previous experience of working collaboratively (Gallagher and Gallagher 2012; Van et al. 2012; Jov et al. 2014).

In conclusion, community pharmacists are envisaged to be an important part of the national strategy to provide medicines and advice for palliative care patients in the community (NICE 2004; Department of Health (DH) 2008a; RPS and RCGP 2011; RPS England 2016); however, little is known about their role in the primary care team. There is currently no published research addressing the delivery of palliative care pharmacy services within the context of the English pharmacy contract. Further research with community pharmacists will help to understand their experiences and concerns and the impact this has on timely access to palliative care medications for patients and their carers. The lack of published literature in this area makes a clear case for taking forward research into the community pharmacist's role in palliative care, in particular their role in providing timely access to palliative care medicines.

Chapter 3: Methodology and Methods

3.1 Introduction

The following chapter is divided into two parts: methodology and methods. The methodology section outlines the underlying theoretical perspective and the rationale for using a mixed methods approach. Following this different data collection methods are discussed including a critical account to justify the methods chosen within this study. After this, the concepts of validity and reliability in quantitative and qualitative research are described with further information on the research strategy chosen including sampling, access and recruitment, and analytical techniques to ensure rigour in the study approach. The ethical issues relevant to this study are then considered prior to the second section where the specific methods utilised in this study are described in more detail.

3.2 Part One: Methodology

3.2.1 Theoretical perspective

Understanding the underlying theoretical and philosophical perspective of the research approach is necessary since phenomena can be studied from different stances with the researcher not being wholly neutral in the process. Research inquiry is based on ‘a range of views about what exists (ontology) and how we may know about it (epistemology)’ (Knight 2002: 23). Different viewpoints are historically associated with different methods of inquiry. Positivism believes in a single reality and is associated with quantitative methods while constructivism believes in multiple realities and uses qualitative methods (Lincoln and Guba 1985). In reality, investigators take a continuum of viewpoints rather than a dichotomous perspective (Teddlie and Tashakkori 2009) with the middle ground between the two labelled as pragmatism. Pragmatists use the full range of qualitative and quantitative methods choosing the most appropriate method for the research question depending on whether an inductive or deductive approach is required. The

choice of methods should be conventional for the epistemological and ontological viewpoint or must be fully justified as being appropriate to answer the research question. This research study follows a pragmatist approach.

Certain theoretical frameworks are associated with qualitative enquiry for instance: phenomenology, ethnography, and grounded theory (Bryman 2012; Charmaz 2006) and these frameworks hold or support the theory generated within the study. Theoretical frameworks may also be linked to an intervention or be latent arising from the literature review but must be a good fit for the research problem. It is suggested by Evans et al. (2011) that a theoretical framework aids navigation and organisation of research in what Schon (1983) calls the “low, swampy ground” of mixed methods research though Evans et al. (2011) go on to report there is no widely accepted framework to guide inquiry and few mixed methods studies describe the use of a framework. The theoretical framework supports decisions in the study design including sampling and recruitment, data collection, analysis and interpretation (Evans et al. 2011). Whichever theoretical perspective is taken different methods of data collection are used as appropriate for the research aims and objectives. To support qualitative data analysis and interpretation an analytical framework is used to facilitate coding, management and organisation of the data so as to reduce and summarise the data to support answering the research questions (Gale et al 2013). Further information on data analysis is provided in 3.2.8 and the use of other theoretical frameworks within 5.5.

3.2.2 Quantitative versus qualitative research

Historically, quantitative research is viewed as deductive with the purpose of confirming or testing theory while qualitative research is inductive and generates theory. Each method of inquiry is fundamentally different in its viewpoint. Critics of quantitative research describe the reliance on tools and instruments to accurately measure variables as artificial, failing to take account of social constructs and everyday life (Blumer 1956; Schutz 1972; Cicourel 1982). On the other hand, Bryman (2012) argues that qualitative

research is subjective, is not representative, lacks transparency, may cause problems with generalisation, and is difficult to replicate. Hardy and Bryman (2004) point out that qualitative and quantitative research are similar in many ways. For instance, both are used to answer research questions, reduce large amounts of data, seek out variation and frequency, and relate findings to the literature. Furthermore, Hardy and Bryman (2004) argue that both strategies are concerned with ensuring clarity on procedures for transparency, validity, and reducing error.

Besides the similarities, quantitative and qualitative research may cause problems when used together as expressed by Huberman and Miles ‘In the disorderly world of empirical research, independent measures never converge fully’ (Miles and Huberman 1994: 438). It is necessary to clarify how different research methods are combined, the weighting and timing of each as part of the mixed methods research design to inform the theoretical framework.

3.2.3 General introduction to mixed methods research

Combining qualitative and quantitative research within mixed methods research is recognised as both feasible and desirable even though they have separate and distinctive epistemological and ontological assumptions (Bryman 2012). Mixing research methods allows the researcher to use different methods to answer the research questions to provide a comprehensive account of the phenomenon, which can enhance strengths from either method on its own. Additionally, it supports triangulation of data increasing the validity and supporting explanation of findings generated by the other method, as well as providing a diversity of views and greater credibility from either method alone (Bryman 2012). Mixing methods is particularly suited to social research where little is known about the phenomena and there is a need for greater understanding about a subject (Ritchie et al. 2014).

In the case of the community pharmacist's involvement in palliative care, there are complexities due to communication factors, attitudes, behaviours, motivation and relationships that cannot be measured or described through quantitative methods alone. Due to the complexity and multiplicity of factors involved in community pharmacists' provision of palliative care, (Creswell 2007: 40) suggests the use of qualitative methods to obtain 'a complex detailed understanding of the issue'. In addition, the use of quantitative methods allows measurement of the issues, which lends more weight to the evaluation. Combining methods provides a number of ontological perspectives, answering different questions posed within the research. Quantitative methods on their own would not take account of the behaviours and complexities involved and would only give a 'static' picture of the pharmacists' involvement in palliative care (Bryman 2012). Utilising a combination of data collection methods can provide richness and detail allowing explanation of delays in obtaining medicines as well as the community pharmacists' experiences in delivering palliative care services.

A benefit of mixed methods is how the combined approaches 'triangulate' each other, adding to the phenomena to validate the theory (Ritchie et al. 2014). Gilbert (2008: 128) states that mixing data from qualitative and quantitative methods reveals 'different dimensions of a phenomenon' helping to provide a fuller picture of the issue.

Previous international research has not focused on community pharmacists' actual experiences in palliative care; so little is known about their views, perceptions and experiences in delivering palliative care services. Utilising a qualitative approach captures those experiences and the context to understand the pharmacists' involvement and processes leading to delays in obtaining palliative medicines. Combining qualitative and quantitative methods answers the research problem, the aims and objectives as well as provides greater insight into the experience and perspectives involved.

3.2.3.1 Types of mixed methods studies

Around forty types of mixed methods strategies have been reported within the wider literature (Tashakkori and Teddlie 2003), many of which are individualised for a specific study. Creswell and Plano Clark (2011) identify six major design strategies for combining mixed methods research namely: triangulation, embedded, explanatory, exploratory, transformative and multiphase designs. It is beyond the scope of the thesis to describe these strategies except to say the strategy chosen must help answer the research problem, the aims and objectives of the research, and will depend on the researcher's expertise, the available resources, and the audience expectation. In this study, a sequential explanatory mixed methods approach was chosen with a quantitative phase followed by a qualitative phase. The reasons for this choice will be outlined further below.

3.2.3.2 Factors to consider in the choice of mixed methods research strategy

There are three decisions to make in the choice of a mixed methods research strategy namely: the timing of the use of data whether sequential or concurrent, whether the qualitative or quantitative methods are given equal or unequal weighting, and how the datasets are integrated, e.g. merged, embedded or connected (Creswell and Plano Clark 2011).

Sequential research methods have the advantage that they can be done by a single researcher without a research team, which is helpful when there are limited resources. In addition, they are straightforward to implement and report on. *S*equencing a qualitative phase after a quantitative phase supports the researcher to explain findings generated from the quantitative data as well as giving more detail on the phenomenon (Bryman 2012; Ritchie et al. 2014). This is particularly helpful where group sizes are small, where a group may have perspectives that cannot be fully explored in the quantitative study, or where detailed statistical analysis cannot be performed (Ritchie et al.

2014). By sequencing the quantitative phase before the qualitative phase, the researcher was able to identify participants for purposeful sampling to support explanation of significant and outlier results. Though a sequential mixed methods approach has the advantages outlined above there is also the disadvantage that the research process can be prolonged due to the extensive time required for data collection and analysis for each component. Furthermore, having the necessary skills and training to undertake both components can be problematic. This was mitigated to some extent as the researcher completed specific training in qualitative interviewing and data analysis, having already completed quantitative and qualitative methods within the DPharm programme. Support from research supervisors experienced in qualitative methods also supported the qualitative data analysis.

3.2.3.3 Weighting of quantitative and qualitative elements

Whether qualitative or quantitative methods are given equal or unequal weighting depends on the research question, the researcher's experience and the resources available. A pragmatic approach would support an equal approach; however, an unequal approach is also acceptable depending on the research question (Creswell and Plano Clark 2011). For example, a qualitative approach could be given higher priority within a study to determine the relevance of findings within the context of a specific culture or setting. More resources are required where each is given equal weighting. Previously the Sheffield CCG evaluation of the pharmacy LCS was quantitative in nature. Likewise guidance from the Medical Research Council (MRC) on research methods for developing and evaluating complex interventions focuses on measurable outcomes using experimental methods (Craig et al. 2008). It is therefore expected that the CCG, who commission the pharmacy LCS and are the expected audience for this study, would likely be interested in facts and quantifiable data, which would support an unequal weighting towards a quantitative design.

3.2.3.4 Choice of strategy chosen for this study

Explanatory design is a two-phased mixed method design in which quantitative data are collected in Phase 1 and qualitative data in Phase 2 with the purpose of helping to explain the quantitative results, or guide purposive sampling of participants in Phase 2 (Creswell and Plano Clark 2011). It can be particularly useful in explaining significant, outlier or surprising results (Morse 1991).

The advantages and challenges of an explanatory design as suggested by Creswell and Plano Clark (2011) are as follows:

Advantages -

- it is straightforward to implement
- there is a clear delineation between phases, which makes it simple for the reader to grasp
- it can help purposive sampling and therefore a smaller sample size for the second phase may be used
- it can appeal to those who want a quantitative orientation

Challenges -

- it can take time to implement two separate phases
- the qualitative phase may have a small number of participants but can take longer than the quantitative phase
- decisions must be made on the recruitment of individuals to the second phase and how these are specified in advance of the findings being available.

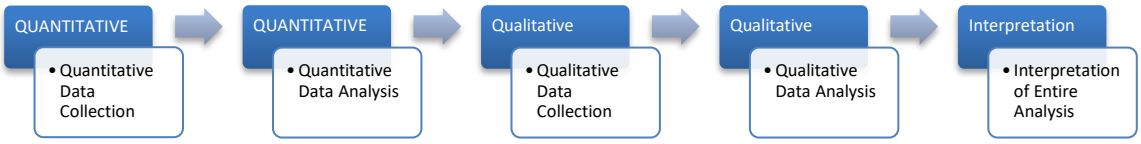
An explanatory design was chosen to support answering the objectives within each phase of the study. In Phase 1, the pharmacy data collection was designed to investigate prescription errors and other variables that may

impact on the time to access palliative medicines on prescription within the participating pharmacies and in Phase 2, purposively sampled pharmacists and healthcare professionals involved in the delivery of palliative care were interviewed to ascertain their views on those factors facilitating or limiting the community pharmacist's role in palliative care.

3.2.3.5 Visual model of strategy

Creswell (2003) suggests the use of a visual model in mixed methods research to show the implementation, priority, integration, and theoretical perspective of the study. In this study, the quantitative data was collected prior to the qualitative data with the quantitative data originally having priority in explaining the research. A visual model depicts this sequential explanatory design in figure 3.1 using notation by Morse (1991) as follows:

Figure 3.1: Visual model of explanatory sequential research design (modified from Creswell, 2003)



3.2.3.6 Critical justification of methodology

Mixed methods research provides a strategy allowing the researcher to understand the phenomenon being studied from different perspectives allowing explanation and interpretation of the results. Quantitative studies measure variables requiring the researcher to have insight into the important variables contributing in a given situation but since previous research has not accounted for all such variables or their impact on accessing palliative medication it would not be possible to undertake a larger quantitative study

without examining the feasibility of testing such variables first. Investigating prescription delays and relating this to variables such as prescription errors and medicines not stocked on the pharmacy LCS stock list, as supported through literature findings, helped the researcher identify such variables as well as investigate processes and systems that could be improved to obtain timely access to palliative care medicines, which was explored further within Phase 2 of the study. The qualitative element provides further investigation into those factors that support or hinder the pharmacist's role in providing timely access to palliative care medication as well as explore their wider role in supporting palliative patients in physical, psychological and other aspects of symptom management. This enabled the researcher to explore the pharmacist's involvement in palliative care beyond a supply function as set out in the research objectives and provides new insights not predicated beforehand.

The emphasis within the research was to find factors that support or hinder the community pharmacist's delivery of palliative care services and to measure timeliness in accessing medicines. Local commissioners of community pharmacy services would be most interested in figures and numeric data, and the researcher's background in audit and service evaluation make it easier to emphasise the quantitative component of the research. As a single researcher, it would be difficult to collect quantitative and qualitative data concurrently; therefore, a sequential phased model was chosen.

A sequential mixed methods research design was chosen to provide a flexible approach in answering the research objectives; collection of specific quantitative data measured delays in dispensing processes and those variables having the most impact on timely access, while qualitative data provided an in-depth comprehensive explanation of the delays and other contextual information from the perspective of healthcare professionals. The quantitative element was explored and analysed first according to the research objectives to subsequently inform the sample chosen for the second

qualitative phase and inform questions within the semi-structured interview guide. This allowed the researcher to focus on those elements that were determined to be important factors in supporting access to palliative medicines within community pharmacies within the limited timeframe of the interviews. Further details on the sampling methodology are provided in section 3.2.6. The sampling strategy chosen allowed a deeper look into significant results without requiring a large number of participants. This reduced the timeframe for this phase as well as reducing the amount of resources required. Data from each phase was connected; the analysis of one data set leading to the subsequent need for the other data. This connection guided the selection of participants for Phase 2 and ensured specific research questions were asked in the qualitative phase to provide an explanation of significant (and non-significant) results.

3.2.4 Data collection methods

3.2.4.1 Introduction to data collection methods

As explained earlier different data collection methods are associated with the various theoretical perspectives. Johnson and Turner (2003) describe six data collection techniques associated with mixed methods research including: observation, unobtrusive measures, focus groups, interviews, questionnaires, and tests.

Questionnaires and tests can provide measurable data but they usually require a large sample size, and the closed questions and fixed responses are unlikely to capture the nuances of complex experiences as detailed in the research objectives. Nevertheless questionnaires are easy and cheap to administer and allow respondents to remain anonymous. A questionnaire was chosen for the customer survey within this study for the reason of remaining anonymous; more details of which can be found in section 3.2.3.

Observation is often associated with ethnography where researchers are immersed in a culture or field of naturalistic inquiry. This method would

require extensive time in the field observing community pharmacists in their day to day work but may not be specific to palliative care where this is observed at a low frequency in the community pharmacy environment.

Unobtrusive measures include documentary analysis, diaries and other reports. At present no such documentary data is collected either locally or nationally making unobtrusive methods or analysis impractical.

Another option would have been to use focus groups; however, due the small number of sites, with pharmacists working across various locations, this would be impractical to arrange. In a study by Faull et al. (2013) looking at the challenges community health professionals encountered in anticipatory prescribing, community pharmacists tended to choose individual interviews over focus groups due to such practical reasons. Focus groups could have also been chosen for the healthcare professional interviews but would have been difficult to arrange considering the small number of consenting candidates; most of whom worked across separate locations. Arranging a suitable location and work time to conduct the interview would have been problematic and could have led to delays in the research process. If a suitable time cannot be arranged for a focus group, this could lead to problems with recruitment, for instance, where participants have caring responsibilities. Furthermore, focus groups could cause difficulties for the researcher in recording, transcribing and running the focus group single-handedly. Seymour and Clark (1998) suggest the use of focus groups and documentary analysis in palliative care research though neither of these methods would provide the in-depth data given by interviews.

Interview methods allow exploration of ‘people’s individual and collective understandings, reasoning processes, social norms, and so on’ (Mason 2002: 56) providing an ‘insider’s view’ on the phenomenon. Interviews are often employed in qualitative research when an in-depth understanding is sought providing an interpretive approach combined with other methods. In the next section, I will discuss different interviews and the strategy chosen within this study in more depth.

3.2.4.2 Interviews

Bryman (2012) summarises twelve major types of interview; ten of which relate to qualitative research including semi-structured interview, unstructured interview, intensive interview, qualitative interview, in-depth interview, focused interview, focus group, group interview, oral history, and life history. The other two, structured and standardised interviews, are used in quantitative and survey research, and deliver identical questions often with fixed answers similar to questionnaires and survey instruments. The disadvantages of these approaches have been discussed in section 3.2.4.1.

In this study, the researcher determined that individual interviews rather than group or focus groups would be necessary due to the practical reasons detailed in section 3.2.4.1. Individual interviews are necessary to capture the detail, description and rich data of the pharmacists' experiences to answer the research questions and objectives. Individual interviews would be essential because each pharmacist's circumstances and perspectives may differ. The healthcare professionals had different roles such as GP, nurse, or palliative care specialist; so individual interviews allow the researcher to tailor the questions to the participant thereby maximising data collection within the available time allowed for the interview. Originally the study was designed so that interviews were approximately 45 minutes long to generate rich data as less than 30 minutes is unlikely to be productive (Robson 2002). Interviews with other healthcare professionals were designed to be between 20-30 minutes long to minimise the time taken away from other patient-facing clinical duties whilst maximising time on the relevant research questions. Individual interviews were also chosen to minimise resource time for each healthcare professional and allow the interviews to fit between surgeries or patient visits.

Rice and Ezzy (1999) state the use of a semi-structured interview guide reduces the risk of bias affecting the interviewee's response. Semi-structured interviews were chosen for this study since they provide a flexible delivery allowing the researcher to listen and probe further to elicit meaning during the

interview as well as modify questions as the research progresses. The use of a topic guide ensured that the interview focused on the research questions.

3.2.5 Ensuring rigour

3.2.5.1 Introduction to the concept of rigour

In quantitative research rigour is attained through applying specific tools and instruments so that variables are controlled. Validity is assured through using a representative sample of the population, randomisation, exclusion or inclusion of specific variables, and specific statistical analytical methods. By contrast, qualitative research variables may be unexpected and instruments may be designed in response to the social setting. According to Holliday (2016), researchers need to explain and justify their choice of social setting, research activities, themes and focuses, how data is captured and recorded as well as being reflexive on opportunities and assumptions in the research process to ensure rigour.

3.2.5.2 Honesty, reliability and validity

Mason (2002: 39) defines reliability as the ‘accuracy of your research methods and techniques’; likewise, validity is ‘measuring what you say you are.’ Ballinger (2004) explains that reliability is being able to reproduce the same results for a predetermined set of parameters and validity refers to how well the results represent the truth.

The terms have been considered for each of the data collection methods used within the study and are presented with corresponding issues in table 3.1.

Table 3.1: Honesty, reliability and validity in the study

Tool used	Honesty	Reliability	Validity
Pharmacy data collection	Provides observational field data. Prolonged data collection period. Relies on others to complete the data form leaving room for bias.	Relies on identifying all relevant data. Relies on pharmacy site to complete form. Sample bias. Use of mixed methods. Requires adequate sample size.	Complex paper form which could mean data is missed. Not a validated form.
Customer survey	Provides customers views. Potential sample bias as pharmacy team distributes survey. Way survey is delivered by pharmacy team and surrounding conditions could influence completion.	Simple form easy to complete. Relies on customer to read and interpret questions. Difficulty if customer is distressed or in a rush leading to unreliable answers.	Not a validated instrument. Questions may not be answered or form not completed resulting in missing data.

Tool used	Honesty	Reliability	Validity
Interviews	Member checking of transcripts. Inclusion of broad range of healthcare professionals.	Full transcript of recorded interview. Use of mixed methods.	Researcher bias in interpretation. Reflexivity of researcher to improve validity to minimise pre-conceptions and bias. Supervisory team involved in deduction of themes.

Minimising bias is important within research to ensure objectively and trustworthiness of results. To minimise bias in the pharmacy data collection, a standardised data collection form was developed and piloted with a pharmacy, and modified to ensure simplicity and efficiency in the data collection process. The pharmacist was briefed on the data collection process and a template for introducing the customer survey was developed for pharmacy counter-staff as it was understood that sensitivity in introducing the survey was needed at what could be a distressing time for patient's relatives.

To minimise bias in the qualitative study, participants were diverse in that there was no exclusion based on age, disability, gender, sexual orientation, race, culture, or religion. Wherever possible, participants in the qualitative interviews were selected from different areas of the city to exclude local differences in services based on social class or exclusion from certain services, e.g. hospice or specialist palliative care services. All professional groups that are involved in medications for palliative patients were invited to participant and no-one was excluded in taking part. District and community nursing teams were from two separate locations in the city.

Minimising bias is also essential when conducting the interviews, which can be achieved through training in interviewing techniques to minimise the risk of asking leading questions, the use of a semi-structured research guide, and being reflexive in approach. To increase honesty of results, member checking of interview transcripts can be undertaken.

Another way of reducing bias is to use different methods for collecting data and then triangulate the results. In this study, the pharmacy data collection form could be triangulated against the customer survey to check on the validity of the information. Interviews of healthcare professionals were used to triangulate data from the quantitative phase helping to further verify and strengthen the findings.

The validity of the qualitative study could have been improved through independently co-rating emergent themes for inclusion in the framework. In larger studies, more than one researcher may be involved in data analysis due to the scale of the data and to improve the validity of findings. Since this study was completed as part of the researcher's DPharm, it was necessary to ensure the results are attributable to her efforts, which may have been more difficult to ascertain if more than one person completed the analysis. Strategies to reduce bias and strengthen the validity of the results were utilised through supervisors and discussion of emergent themes within a University research group. In addition, the researcher kept a diary and used a reflexive approach. In presenting the results, the researcher has supported the discussion with vignettes from transcripts to verify the emergent themes.

3.2.6 Sampling

Teddlie and Yu (2007) present the whole taxonomy of sampling techniques in the social sciences including probability sampling, purposive sampling, convenience sampling and mixed methods sampling. Within mixed methods sampling they further describe five techniques including: basic mixed methods sampling, sequential mixed method sampling, concurrent mixed method sampling, multilevel mixed method sampling, and a combination of mixed methods sampling strategies. Mixed methods sampling is considered part of a continuum of sampling with probability sampling (often associated with quantitative research) at one end and purposive sampling (often associated with qualitative research) at the other (Teddlie 2005).

Probability sampling such as randomisation, used within traditional experimental research to minimise bias and improve reliability of results, however, posed a problem in this study due to the low volume of palliative care prescriptions within primary care. Quantitative studies require the researcher to have insight into the important variables contributing in each situation but such variables were difficult to predict due to the lack of previous research in this field. It would not be possible to obtain a large sample size

and the underlying assumptions of normal distribution in the population may not hold. In addition, the presence of confounding variables across different pharmacies for example the number of support staff would make it difficult to analyse data to reach significant conclusions.

In the quantitative phase, the researcher was interested in whether prescription errors caused a delay in obtaining palliative care medicines; so a sample size would be calculated based on the observed frequency of errors in the population. The researcher had been unable to find any published data or studies showing the prescription error rate for palliative care prescriptions. Therefore, the sample size was based on the observed frequency of opioid and midazolam prescriptions using data from NHS Digital. Due to the low frequency of observations in the population, it was necessary to recruit more pharmacies to attain an adequate sample size.

Purposive sampling involves selection of cases 'based on a specific purpose rather than randomly' (Tashakkori and Teddlie 2003: 713) and can include sampling for representativeness or comparability as well as sampling unique or a specific group of cases that are the focus of a study (Teddlie and Yu 2007). In this study, a purposive sampling strategy was utilised in the qualitative phase since the study is looking for diversity of opinion and views within various participants. Other sampling methods such as snowballing, theoretical sampling and stratified sampling could have been utilised; however, they may not have ensured a wide diversity of views within a small number of interviews.

Due to the low volume of palliative care prescriptions in the community, it was felt important to purposively identify those pharmacies that had greater volumes of palliative care prescriptions for both phases of the study. It would be expected that those with greater input into palliative care prescriptions would have perceptions and experiences which would be relevant to the research problem. Purposive sampling of pharmacies also ensures a wider

range of different sites contribute to the research such as independent and multiple pharmacies; those co-located or not located near GP surgeries.

Unfortunately, a low recruitment of pharmacies into the study meant the proposed sample size of fifteen pharmacies in Phase 1 was not met. Not meeting the sample size could introduce bias and reduce the reproducibility of the results. Furthermore, undertaking the data collection in a single city reduces the validity and transferability of results to other areas of England. As the research is exploratory, sampling of additional healthcare professionals helped strengthen the qualitative phase. Teddlie and Yu (2007) discuss the trade-off between representativeness in the quantitative sample and saturation in the qualitative sample based on available resources. Such theoretical saturation in qualitative research is a concept associated with grounded theory where you sample until no new data emerges that changes a category or the relationships between categories so that categories are well established and validated (Strauss and Corbin 1998). Though theoretical saturation was not determined in this study, the sampling frame and size supported the concept of 'data saturation' within the qualitative interviews due to the fairly heterogeneous sample and limited focus of the study. Kaae and Traulsen (2015) suggest a sample of 15 to 25 semi-structured interviews is necessary to achieve 'data saturation' in pharmacy practice research.

3.2.7 Access and recruitment

Access to study participants was achieved through organisations or individuals acting as 'gatekeepers'. Gatekeepers such as GP practice managers and nursing team leaders provide access to study participants and could distribute participant information to enable potential participants to contact the researcher. Use of gatekeepers can introduce bias as to who is approached; however, as the focus of the research was on community pharmacists and not an employer or organisation that the individual worked for, this was felt to be immaterial.

Access relied on convenience so as to interview a number of nursing staff in the same location on the same day. Two nursing base locations were chosen to increase sampling diversity.

Recruitment to the study was achieved through a process of informed consent prior to any data collection in both phases of the study. Further information on the process of informed consent is discussed in section 3.2.9 and 3.7.1.

3.2.8 Data analysis

Quantitative data collects either numerical data or data that can be ‘quantified’. This may mean coding the data by transforming it into numbers to allow data analysis to take place (Bryman 2012). Data analysis reduces the amount of data, tests for relationships and allows presentation of the results (Bryman 2012). The use of inferential statistical methods allows the data to be described. Further information on the quantitative data analysis is provided in section 3.3.5.4.

There are many traditional approaches to analysing qualitative data that vary in their epistemological views as well as the focus and aims of the analysis (Ritchie et al. 2014). The main approaches and issues have been described by Harper and Thompson (2012) and will not be discussed in this thesis. Thematic analysis is a widely used technique that is not grounded to any particular epistemological position or theoretical approach (Gale et al. 2013; Ritchie et al. 2014). Framework is a strategy that assists in thematic analysis and was developed at the National Centre for Social Research (NatCen) in the UK and described by Ritchie et al. (2014). Framework is a technique that is well described and has been used in studies in community pharmacies (Bond et al. 2008; Savage et al. 2012; Evans et al. 2016) as well as in palliative care (Andrews and Seymour 2011; Akram et al. 2012; Nash and Fitzpatrick 2015; Lim et al. 2017) including studies that are similar to this one (Akram et al. 2012; Bennie et al. 2012; Savage et al. 2012).

The Framework method was chosen for the analysis since it is a flexible technique that can be adapted for different qualitative approaches, providing a systematic and visual output to arrange themes. It allows the researcher to use deductive or inductive processes to code content (Gale et al. 2013).

3.2.9 Ethical considerations

Ethical issues that need to be considered during the research process include:

- Voluntary participation
- Informed consent
- Privacy – anonymity, confidentiality
- Doing no harm
- Doing good – beneficence
- Responsible dissemination of your work and findings
- Scholarship issues – honesty, reliability and validity (University of Bradford 2010)

The methods for ensuring voluntary participation, informed consent and privacy are discussed in more detail in the methods section 3.4. Issues of honesty, reliability and validity have already been addressed in section 3.2.5.2 and in the methods for each phase of the study.

Participation in research besides being voluntary is often without compensation (Seale et al. 2004). There is the need to consider what resources may make it easier for people to participate including reimbursement for costs incurred (Ritchie et al. 2014). Individual pharmacies participating in the research were offered a payment of £100 for the data collection in Phase 1 and £30 for participating in an interview in Phase 2. Funding was provided through a research grant and allowed pharmacies to

be reasonably resourced for their time in completing the research activity. Payment covered all the following activities: local co-ordination and management of the study within the pharmacy, which could include notification for indemnity insurance purposes, training of staff, data protection registration, development of standard operating procedures and notifications to patients that the pharmacy is involved in research, the completion of the customer survey, data collection forms and intervention logs as well as briefing and consent procedures with the researcher. There was also a need to resource ongoing communication with the researcher and patients regarding the study.

What would be considered a reasonable payment may be difficult to determine and it may be considered unethical to incentivise research activity. To calculate a reasonable payment the researcher detailed the time required for the various research activities as per table 3.2.

Table 3.2: Calculation of research time for involvement in the study

Research Activity	**Time**
Briefing of lead pharmacist and consent with researcher	30min
Identify patients and conduct customer survey for up to 30 customers	30min
Complete 30 data collection forms on 30 prescriptions	60min
Complete intervention log for 4 weeks of study	30min
Debrief and collection of data forms between researcher and lead pharmacist	15min
Co-ordination and management time	30min
Total Time	**3hr 15min**

The hourly rate for pharmacists provided by the Clinical Research Network (primary care) NIHR was £55; so the above activity would be over £178 if undertaken by the lead pharmacist. It was expected that in most cases a mix of staff, including pharmacy counter-staff and pharmacy technicians, would support the lead pharmacist. Since the research was being undertaken across all hours the pharmacy was open (sometimes 100 hours or extended opening hours in many pharmacies providing palliative services), it was expected the payment would support dedicated time to brief all staff in the data collection, not just for the hours when the lead pharmacist was available.

The payment of £100 on completion of the data collection was considered reasonable in terms of the time and resources required to participate. The payment was agreed through independent peer review as part of the grant funding and through University of Bradford ethics processes.

The Research Ready Handbook (RPSGB 2017) states that pharmacies must ensure they are resourced adequately for participating in health services and clinical trial research. Understanding the time commitment involved ensures that pharmacists are respected as equal professionals within the research community and will hopefully provide a good experience allowing them to participate in other studies in the future.

The funding body sponsoring the study is Pharmacy Research UK, an independent charity that does not receive funding from the pharmaceutical industry. Sponsorship of the study does not create any financial or vested interest for the researcher. All research processes are independent of the funding stream besides peer review of the study. The funder has no direct influence over the conduct of the study except for the allocation of funding at study initialisation, at 12 months, and at the end of the study period. In some cases, funding can cause problems where unreasonable timetables and budgets have implications on participation and recruitment (Ritchie et al. 2014); however, this was irrelevant as PRUK provided a flexible approach allowing project variations within the available resources.

3.3 Part Two: Methods

3.3.1 Introduction

In part two, the ethical and governance approval processes are outlined prior to discussion of the methods and processes used within the quantitative and qualitative phases of the study. Within the quantitative (Phase 1) study, further details are provided on the sampling and recruitment of the pharmacies, development of the survey and data collection tools, and the data management and analytical processes. Following this the methods employed within the qualitative (Phase 2) study are detailed including sampling and recruitment of interviewees, development of the interview topic guide, interview transcription, data management, and framework analysis development.

3.3.2 Ethical and research governance approval

The Chair of the Biomedical, Natural, Physical and Health Sciences Research Ethics Panel granted ethics approval for the study at the University of Bradford on 17th December 2015 (Appendix C). An ethics amendment to include other healthcare professionals in the qualitative interview phase was approved by the Chair on 10th October 2016 (Appendix D).

According to the Governance Arrangements for Research Ethics Committees (UK Health Departments 2011), it was not necessary to obtain full NHS Research Ethics Committee (REC) approval for this study, which was confirmed by the Sheffield Research Development Unit (SRDU) and local NHS Trust Research and Development (R&D) office. Specific decision tools to determine whether your study is research and whether Research Ethics Committee (REC) approval is required are available from the Health Research Authority (HRA) website (HRA no date). The study did not randomise participants to different groups, change treatments from accepted standards, and the results are not generalisable to a broader range of clinical settings; so the study is not considered research according to the HRA criteria. Since

further approvals may have been required, the local research office for primary care and the local NHS Trust Research and Development (R&D) office were contacted for further information and confirmed no further approvals were required.

NHS Sheffield has a shared governance arrangement for approval of research in primary care co-ordinated by the SRDU hosted by the Sheffield Health & Social Care NHS Foundation Trust. The SRDU confirmed further governance approval was not required according to the HRA decision tool (HRA no date) on 9th November 2015. Following an ethics amendment to include other healthcare professionals, the SRDU confirmed again that no further governance approval was required.

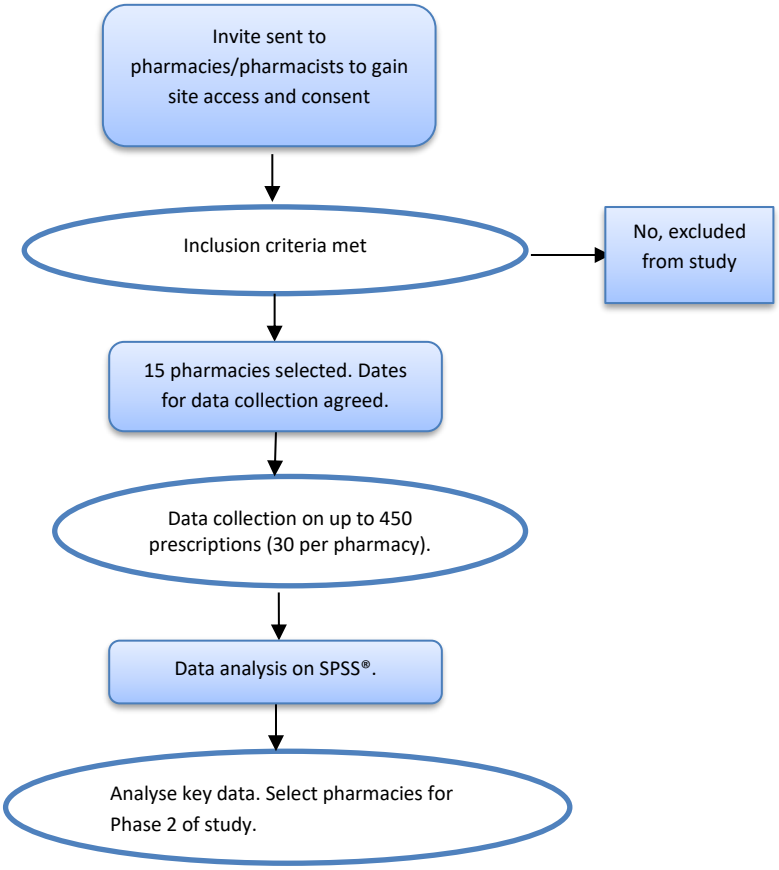
Local approval was not required as the study was considered a service evaluation and audit within community pharmacies; however, the study was registered within the research department at the Sheffield Teaching Hospitals NHS Foundation Trust as study STH19123 due to the financial implications of receiving grant funding.

3.3.3 Study procedure Phase 1 and Phase 2

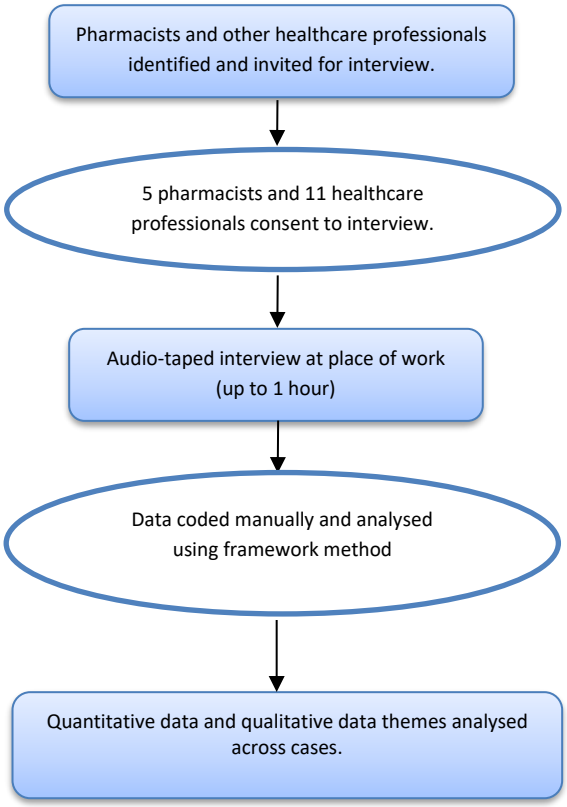
The research procedure is summarised in figure 3.2

Figure 3.2: Study Procedure

Phase 1



Phase 2



3.3.4 Quantitative Methods (Phase 1)

3.3.4.1 Population

The population for the study was chosen from Sheffield community pharmacies including those participating in a locally commissioned service (LCS) for supplying palliative care medicines. The key criterion was to include pharmacies providing the commissioned service and extended hours or 100 hours as well as pharmacies not commissioned to provide the service.

3.3.4.2 Sampling

3.3.4.2.1 Sampling pharmacies

The intention of the study was to sample pharmacies to provide diversity of service provision and data rather than to reach a statistical sample size. Indeed random selection of pharmacy sites was not possible due to the low level of palliative care prescriptions in primary care and the need to collect substantive data for analysis.

During the evaluation of the LCS by Tsoneva (2011), postcodes in which patients resided were mapped out with most palliative care prescriptions coming from thirteen out of seventeen Sheffield district postcodes. Following Tsoneva's evaluation, the CCG rolled out the LCS to nineteen pharmacies across 128 pharmacies in Sheffield using a LCS specification (Tsoneva 2010). Although sampling all LCS pharmacies plus comparators not in the LCS would have provided extensive results, the researcher had to make a pragmatic decision on the number of pharmacies to include due to limited resources for data entry and analysis. Originally fifteen pharmacies were to be sampled to ensure a wide spread across the city, including both pharmacies in the LCS and comparators not within the LCS. Involving pharmacies near Sheffield boundaries would pick up potential problems where items not on the Sheffield LCS list are prescribed by non-Sheffield GPs.

The fifteen pharmacy sites participating in Phase 1 were originally chosen according to the following inclusion and exclusion criteria:

The inclusion criteria were:

- Sheffield postcode
- willingness to participate
- written informed consent provided
- either part of the locally commissioned service to assure access to palliative care medicines or the equivalent ability to dispense thirty palliative care prescriptions in a month. This included three pharmacies (20% of sample) not participating in the LCS as comparators.

The exclusion criteria were:

- pharmacists who had not worked in the UK for at least 12 months to ensure those participating were familiar with UK and local community pharmacy services
- company or manager have not given permission for access to the pharmacy site or pharmacist

All pharmacies in the Sheffield area were invited to participate with an emphasis on pharmacies within the LCS since they were expected to have a greater interest, higher numbers of palliative care prescriptions, and more patients or carers accessing these services.

For comparator pharmacies, it was identified that having a prescription turnover of at least 5000 items per month with at least 0.5% palliative care medicines, e.g. opioids (not substance misuse), and anticipatory or subcutaneously administered medicines should provide an equivalent ability

to dispense thirty palliative care prescriptions within the data collection period.

If more pharmacies consented to take part than were necessary, pharmacies would be purposively selected to provide diversity in ownership including independent and multiple pharmacies, those providing extended opening times or OOH services, and those located near GP practices to reflect a range of postcode areas. Following pharmacy recruitment problems, purposive sampling was not required since only five sites consented to participate.

3.3.4.2.2 Pharmacy recruitment

Pharmacies were initially invited to express interest in participating through an electronic briefing circulated on 8th January 2016 by the Sheffield LPC, see Appendix E. A further briefing was circulated on 28th January 2016 following a slow response. Parallel to this, the LPC Chair briefed LPC committee members to increase awareness of the study, continued to provide a point of contact to develop interest and rapport for the research, and allow access to gatekeepers of individual sites. Following the briefing, six pharmacies expressed an interest in participating. Of these, two pharmacies did not consent as they had low volumes of palliative care prescriptions.

Due to the slow recruitment and to more actively recruit pharmacies participating in the LCS, the researcher sent a fax invite in April 2016 to all LCS providers who had not already expressed an interest in participating. The researcher received no expressions of interest following the fax invite. In addition, the researcher provided a briefing following a local community pharmacy development event to try and recruit further pharmacies which resulted in two further pharmacies expressing an interest with one consenting to take part.

Interested pharmacies could contact the researcher via email/telephone to discuss the study. All pharmacies that expressed an interest were provided with a leaflet providing information on the study, including anonymity, confidentiality, and consent procedures as well as details on the pharmacists' responsibilities and payments (see Appendix F). The researcher contacted pharmacies to arrange a suitable time to meet and discuss the study further, obtain consent (see Appendix F), and drop off a site-specific research file containing pharmacy resources including flow chart and data collection forms (see appendices G, H, I, J and K). The site-specific research file ensured all study information including completed as well as uncompleted data collection forms were kept together preventing data from being mislaid.

3.3.4.2.3 Sampling prescriptions

The prescription sample was taken as the first thirty sequential palliative care prescriptions submitted to the participating community pharmacies for dispensing, or in pharmacies with less than 30 cases all palliative care prescriptions, during the data collection period. As community pharmacists may not be aware of whether a patient is receiving palliative care, especially if they are not under a specialist palliative care team, it was felt necessary to have a consistent definition of how to identify a palliative care prescription.

The following criteria were used to identify palliative care prescriptions eligible for inclusion in the study.

A prescription could be included if it was for an adult aged 18 years or over and contained one or more of the following:

- A long acting strong opioid whether oral or transdermal, co-prescribed with a short acting opioid which is not for acute pain, dental treatment or substance misuse. This could include prescriptions where patients had recently received a short acting opioid which was not on the same prescription.

- PecFent®, Abstral®, Effentora® or other fast acting fentanyl;

- Syringe driver or subcutaneous use of an opioid such as alfentanil, diamorphine, methadone, morphine, oxycodone, or non-opioids such as clonazepam, cyclizine, dexamethasone, furosemide, glycopyrronium bromide, granisetron, haloperidol, hyoscine hydrobromide, hyoscine butylbromide, levomepromazine metoclopramide, midazolam, ondansetron, or ranitidine;

- A prescription issued by the specialist palliative care team at St Luke's Hospice;

- An unlicensed medicine used in palliative care – ketamine (oral or subcutaneous), lidocaine 0.2% mouthwash, antacid and oxetacaine, morphine hydrochloride 10mg/5ml, tranexamic acid liquid 500mg/5ml, sublingual use of lorazepam (genus brand), midazolam oromucosal 10mg/1ml;

- Methylnaltrexone injection given every other day or less frequently

It was also necessary to identify urgent palliative care prescriptions within the sample. The criteria for identifying urgent palliative care prescriptions utilised a combination of pre-defined categories and customer[2] input. Urgent prescriptions were identified as those where:

- the customer advised the prescription was urgent;

- the customer advised that the prescription was for a new medicine and therefore was needed urgently for new symptoms and the patient did not have a previous supply of the medicine;

- the customer stated they had run out of their medicine, or expected to run out before the medicine was delivered;

[2] Anyone presenting a prescription to the pharmacy for dispensing is referred to as a customer including patients, carers or their representatives.

- the prescription was for a syringe driver;
- the prescription was for anticipatory subcutaneous medicines per the community last days of life algorithms (diamorphine, haloperidol or levomepromazine, hyoscine and midazolam);
- the prescription was from an out-of-hours GP;
- the prescription was from the specialist palliative care team;
- the patient had previously taken the prescription to another pharmacy and been referred on because the medicine was not available.

Anticipatory medicines are those medicines prescribed in advance of symptoms towards the last days of life to cover symptoms of pain, anxiety, sickness, secretions, and breathlessness. According to the Sheffield EOLC algorithms, this is normally prescribed as diamorphine, haloperidol, hyoscine butylbromide, and midazolam; however, there may be exceptions if the patient has been discharged from hospital or is under specialist palliative care. GPs can be reluctant to prescribe pre-emptively in advance of symptoms as identified in a UK study by Faull et al. (2013); so classifying these prescriptions as urgent within the study simulates the time taken for carers to obtain these medications in a crisis.

The sample of 30 prescription forms for each pharmacy was calculated using NHS Digital prescription data. In 2012-13, the NHS supplied 1,030 million prescriptions in primary care; 0.6% of which were prescriptions for opioid analgesics for the treatment of pain, or midazolam (BNF sections 4.7.2 and 15.1.4). In 2012-13, the average monthly prescription items per pharmacy in South Yorkshire and Bassetlaw was 7780, equating to an average of 39 opioid/ midazolam items per pharmacy per month (Prescribing and primary care Health and Social Care Infomation Centre (HSCIC) 2014). There may be some duplication where both a slow release and immediate release opioid is prescribed on the same form so choosing 30 forms per pharmacy would ensure that the average sized pharmacy would be able to complete the

required data collection within a four-week period allowing a greater number to potentially participate and not just those within the LCS. Collating data across a number of pharmacies ensures sufficient data is collected to reliably analyse factors within the research.

Collecting data from 30 prescription forms from each of fifteen pharmacies meant a total of 450 prescription forms were intended to be sampled. The total number of medicines or prescription items was significantly higher since often more than one item is prescribed on each form.

The data collection period covered all opening hours for the participating pharmacies, including weekends and bank holidays to ensure prevalence data for palliative care prescriptions could be calculated accurately and eliminate sample selection bias. This also ensured data was collected during the OOHs period when it is expected there may be more issues with accessing palliative care medicines or with contacting GPs when there are problems with prescriptions.

It was recognised that various confounding factors could limit the data for instance the time of day the prescription was presented the number of staff working, whether the pharmacy held the medication in stock. It was intended to account for these factors through having a pharmacy specific variable in the analysis.

3.3.4.3 Development of customer survey

The short customer survey consisted of seven questions taking less than five minutes to complete, providing feedback on the customer's experience of accessing and obtaining medicines on one occasion against a palliative care prescription. The survey was modified using questions from the PSNC national Community Pharmacy Patient Questionnaire (CPPQ) and piloted with three customers in one pharmacy before being further refined and piloted again with two patients within the Therapies and Rehabilitation Centre

(TARC) at St Luke's Hospice (SLH). Feedback was also obtained from the Hospice Patient User Co-ordinator, Hospice Risk Manager, and LPC Pharmacy Secretary. The modified customer survey is available in Appendix H, Form A.

3.3.4.3.1 Content of customer survey

The customer survey intended to elicit non-confidential details about the circumstances of the prescription collection from the customer's point of view. This included whether the pharmacy was the patient's usual pharmacy, whether any items were urgent, whether they could collect all the items they required, and whether they had to visit more than one pharmacy. There was also an opportunity to provide free-text comments on their visit and experience in accessing the medicines (Appendix H, Form A). Each customer survey form was numerically linked to the pharmacy data collection form (Appendix I, Form B) providing a cross reference between the customer's experience, product availability, and the time taken for each specific pharmacy.

3.3.4.3.2 Sampling of customer survey

Pharmacy staff within the participating pharmacies were requested to provide customers over the age of 16, presenting with a palliative care prescription with a short customer survey (see form A, Appendix H) to complete over the counter whilst waiting for the prescription to be dispensed. Customers were provided with written information on the study that they could take away whether they wanted to take part in the survey or not (see Appendix J). Home delivery prescriptions and care home prescriptions where the patient or their representative did not physically present in the pharmacy were excluded as it was impractical to obtain informed consent for them to take part. A total of up to thirty customer surveys could be completed in each pharmacy; the total number in each pharmacy depending on whether

customers necessarily consent to taking part, which would equate to a total of 450 within the study if all customer forms were completed.

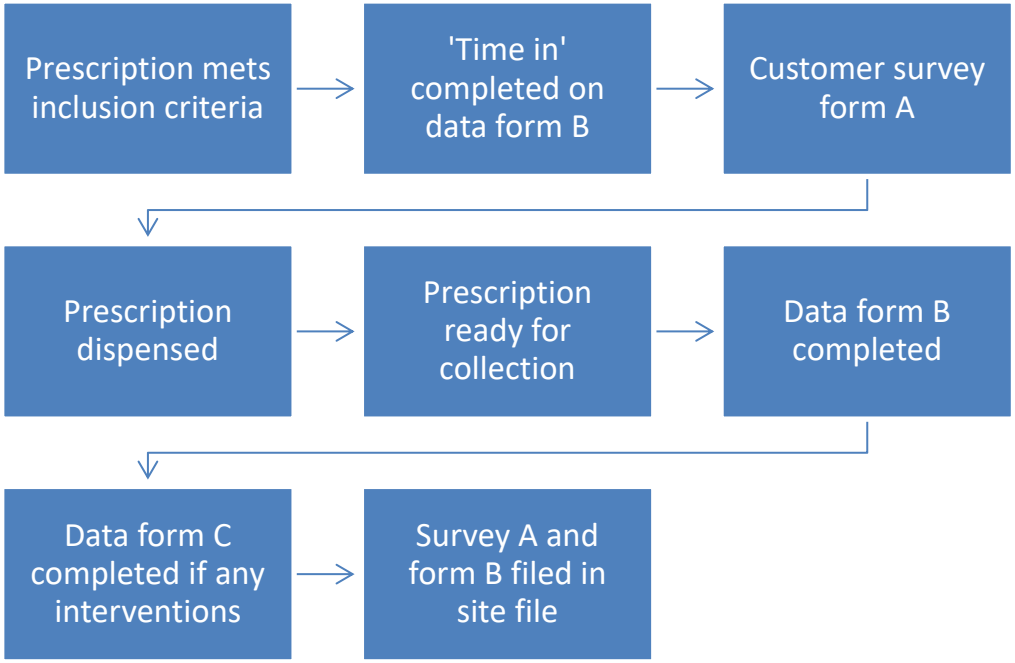
3.3.4.3.3 Distribution and return of customer survey

The survey was distributed by participating pharmacy staff face to face. Pharmacy counter-staff were requested to support the completion of the survey for those who could not read or write English or where customers asked for assistance. Since the customer survey was optional and only provided by pharmacy counter-staff, it was identified that there may be gatekeeper issues and difficulties in customers accessing the survey. In order to counteract this, counter-staff were provided with a suggested script (Appendix L) to capture the data where customers are willing to participate but are unable to complete the survey independently. In addition, a briefing session was conducted with pharmacy counter-staff prior to the data collection to ensure staffs are aware of how to introduce and conduct the survey in their pharmacy.

Completed surveys were either handed back to pharmacy staff immediately or could be returned to a customer survey/comments box as per local pharmacy procedures. Customers could take the survey out of the pharmacy to complete but were advised to return it when collecting their prescription. The majority chose to complete this while waiting for their prescription to be filled in the pharmacy. Completed surveys were filed in the site-specific research file together with the pharmacy data collection form to minimise risk of lost data. There were no missing questionnaires within the study; so all those not completed either were not suitable or did not consent to take part.

3.3.4.4 Method

Figure 3.3 Method of pharmacy data collection process



Data on thirty sequential palliative care prescriptions was initially to be collected from each of the five participating pharmacies over a period of four weeks during an eight-week period from 1st May 2016. Data was collected utilising a standardised data collection form (see Appendix I, Form B) to ensure validity and consistency in data collection across the participating sites.

When a prescription was presented at the pharmacy, counter-staff would identify if it was appropriate for inclusion in the study with support from dispensary staff that checked whether the prescription met the inclusion criteria (see figure 3.1). After completing initial checks and prescription charge payment or exemption declaration, the prescription was passed to dispensary staff to annotate the ‘time in’ on data form B. Counter staff would then have the opportunity to discuss the customer survey using the suggested script (Appendix L) whilst dispensary staff process the prescription in the usual way.

The pharmacy data collection form was then clipped together with the prescription to enable completion of data either during the dispensing procedure or at a convenient time afterwards depending on the circumstances, e.g. urgency of prescription, patient waiting, and concurrent workload. Pharmacies were briefed on the process to ensure the data collection did not impact on the time to dispensing.

Information collected on form B included: the name of the medicines supplied, number of errors on palliative care prescription forms, the type and nature of any error(s), and whether the medication is available for dispensing. Pharmacies timed the process from when a palliative care prescription was presented for dispensing to when it was ready for collection in order to calculate the waiting time for accessing urgent palliative care medications. Pharmacies were asked to identify any delays in the dispensing process. When stock was not available and the patient requested to take the prescription elsewhere, it was requested that the pharmacy complete the information on the form indicating a referral was made.

All medication on the prescription form was included on the data collection form whether there was a problem or not and whether it was specifically for palliative care symptom management or not, e.g. antihypertensive and other co-prescribed medicines were included. This was important to provide further information to the researcher on the number of medicines the patient was taking, the timeliness of completing the prescription considering the number of items on the prescription form, and any other issues on the prescription that may relate to the customer survey; for example, if a part supply of an item required the patient or their representative to return to the pharmacy. On completion of an urgent prescription, the time the prescription was ready for collection/ delivery was noted. Where prescriptions did not meet legal requirements, this was recorded with a note of the intervention undertaken on form B. Clinical interventions that were not legal errors were filled on form C (see Appendix K, Form C) indicating the corresponding form B number to

ensure matching of data. Error codes were used from the PRACtICe study (Avery et al. 2012) as follows:

1- unnecessary drug
2- incorrect drug
3- duplication
4- allergy error
5- contraindication error
6- interaction error
7- dose/strength error
8- formulation error
9- frequency error
10- timing error
11- information incomplete
12- generic/brand error
13- omission error relating to failure to prescribe concurrent medication

Once completed all forms were filed together in the site-specific research file. a new form A and new form B were used for each new prescription presented. All completed forms were collected by the researcher upon completion of the data collection. A further collection of data and site-specific files by the researcher occurred at the end of the data collection period.

3.3.4.5 Quantitative data analysis (Phase 1)

Data from Phase 1 was coded into SPSS® (V 23.0, IBM) (Statistical Package for the Social Sciences) for analysis using appropriate statistical tests to meet the study objectives according to the quantitative data analysis plan in Appendix M.

Demographics of the sample and descriptive data of the prescriptions were analysed including: method of prescription generation, urgency of supply, time of presentation (in or out-of-hours) and the type of drugs requested. The

prevalence of prescription errors both legal and clinical errors was calculated from the sample and crosstabs used to check for relationships with the method of prescription generation. Further analysis of the time to supply medication was completed reporting on the mean, median and standard deviation as well as the effect of errors on this process using crosstabs. Descriptive data from the customer survey was reported including referrals where customers had to attend more than one pharmacy to obtain the medication on the prescription. Analysis also included use of SCR and whether any other interventions were recorded by the pharmacists.

Following statistical tests of pairwise univariate tests, a regression model of significant variables was to be built to test the significance of these factors on the output. It was intended to control for any pharmacy specific variables such as number of staff that could have affected the analysis.

The researcher requested audit data from other areas across the UK through personal request on a forum within the Association of Supportive and Palliative Care Pharmacy (ASPCP). This resulted in personal communication with three people (see Appendix A) who gave more information on their local schemes, including an audit across Birmingham and raw data on a scheme in Northern Ireland. Where possible these personal communications have been used in the discussion to allow the researcher to compare and contrast the Sheffield scheme to other unpublished data.

3.3.5 Qualitative Methods (Phase 2)

3.3.5.1 Sampling

In the qualitative study (Phase 2) a sample of five pharmacists was selected from those participating in Phase 1. Pharmacists were invited to participate in Phase 2 according to the results of the data collected in Phase 1 as per the sequential mixed methods design. Pharmacies were purposively selected with the aim of maximising data diversity and richness, and to help explain

unexpected results. Pharmacies were to be purposively selected based on higher or lower numbers of errors on prescription forms, higher numbers of referrals to other pharmacies, or longer or shorter than average waiting times for urgent palliative care medicines. The type of pharmacy and whether it was included in the LCS were also considerations to increase case diversity. Following analysis of data from Phase 1 in SPSS®, all five pharmacies participating in the Phase 1 data collection had data that met these criteria and so were invited to participate in Phase 2. All five pharmacists consented to take part in the interview.

A sample of five was chosen to explore the cases in depth using in-depth framework analysis to support interpretation of the qualitative themes and understand quantitative data arising from Phase 1.

Other healthcare professionals were purposively sampled to ensure diversity of representation from GPs, community and district nurses, and specialist palliative care team staff (medical and nursing). The researcher approached gatekeepers including practice managers, OOHs provider managers, and team leaders to identify staff who may be willing to be involved and to pass on the participant information leaflet (see Appendix N). In addition, a briefing was sent to all GPs and emailed invitations to nurse managers and team leaders. Although a poster was displayed and information distributed within the OOH provider, the researcher received no contact so this group was not included in the sample.

In most cases, healthcare professionals contacted the researcher to take part having already received the participant information leaflet. Where a convenience sample of district and community nurses was obtained through a team leader at a community nurse base, all potential participants were given time to read the information leaflet and ask questions before consenting to take part in the study.

3.3.5.2 Interviews

3.3.5.2.1 Development of pharmacist semi-structured interview

The topic guide for the semi-structured interview was adapted from Moustakas (1994) and Creswell (2007) with feedback from a Hospice Patient User Co-ordinator. This was piloted with a research pharmacist with experience in qualitative interview methods. Piloting is essential to check interview guide, technique and language of questions, allowing questions to be modified to improve the quality of the data (Vivar 2007).

The guide was further refined following the data analysis from Phase 1 to incorporate specific questions relating to the individual pharmacy and any unexpected results from the data collection. The pharmacist interview covered their experience in palliative care concentrating on the pharmacist's role in palliative care, accessing palliative medicines, collaborative working with other healthcare professionals, interactions with palliative care patients and their carers, decision making, effect on other staff in the pharmacy, and any things they feel could be improved to meet the needs of palliative patients. The topic guide can be found within Appendix O.

3.3.5.2.2 Development of healthcare professional semi-structured interview

The interview guide developed for the pharmacists was used as a template to develop the healthcare professional topic guide. Questions relating specifically to pharmacist participation were removed and key themes arising from the pharmacist interviews were added. A pilot of the healthcare professional topic guide did not take place as the researcher had experience from using the guide within the pharmacist interviews. The interview guide was further refined during each subsequent healthcare professional interview depending on the participant. The topic guide was tailored to the interviewee depending on whether they were an independent prescriber. The topic guide for healthcare professionals can be found within Appendix P.

3.3.5.2.3 Recording and transcription

Interviews were digitally *audio*-recorded by the researcher ensuring anonymity through use of an identifier number on the recording and transcribed verbatim either by hospice medical secretarial staff for pharmacist interviews or the researcher for healthcare professional interviews. Interview transcripts were checked by the researcher against the recording to increase accuracy and any personal details or information that could identify subjects was removed at the transcription stage and given an anonymous code. All transcripts were password protected before being sent electronically to participating pharmacists for member checking, which is suggested to increase the truth-value of the data (Mays and Pope 2000). No amendments were suggested. Other healthcare professionals were asked if they would like to be sent a copy of their interview transcript for checking; however, this offer was not taken up by any of the interviewees.

3.3.5.3 Method

The selected pharmacists were contacted to consent to take part in an in-depth interview and a suitable time and venue were arranged in which to

conduct a face to face interview. One pharmacist from each of the five selected sites was interviewed for approximately 45 minutes utilising the topic guide in Appendix O. Other healthcare professionals were identified through team leaders or voluntarily contacted the researcher following an email or briefing to all GPs. Healthcare professional interviews were between 14 and 45 minutes long and were conducted face to face at a suitable venue and time utilising the topic guide in Appendix P which was modified to the specific staff member.

At the interview, pharmacists and healthcare professionals were asked to consent to audio recording of the interview as per the consent form in Appendix N. The signed consent form was kept by the researcher and stored securely while the participant kept an unsigned consent form.

At the end of the interview, participants were debriefed to ensure feelings were normalised, which is considered important in palliative care research due to the emotive content of the topic (Addington-Hall 2007). Information was provided on how to contact the researcher and the supervisory team if they had any concerns following the interview. In addition, participating pharmacists were given information on contacting Pharmacy Support, a charity that supports pharmacists and who had verbally agreed to providing this support as part of the interview process.

3.3.5.4 Qualitative data analysis (Phase 2)

Originally the study procedure stated that pharmacies with the highest or lowest number of errors on forms, highest or lowest number of referrals or the longest or shortest waiting times would be selected for Phase 2 interviews to ensure diverse cases were chosen to further explain the results.

Initially transcripts from Phase 2 were reviewed by the researcher to become familiar with the content and coded manually using annotations of themes in the margins and highlighting significant phrases. Codes were manually

developed into a framework using broad themes based on the research questions. Subthemes that arose from the data that did not align within the framework were placed in an ‘other’ code and discussed with a supervisor with experience in qualitative methods. Themes were reviewed and agreed with supervisors at several face to face and Skype® supervisory meetings.

The Framework Method involves seven stages: transcription, familiarisation, coding, developing an analytical framework, applying the analytical framework, charting data into the framework matrix, and interpreting the data (Gale et al. 2013). The following process was taken in developing and analysing the data according to the method described by Gale et al. (2013).

1. All interviews were audio recorded and transcribed verbatim and checked against the recording by the researcher to ensure accuracy.

2. Original transcripts were read a number of times in order for the researcher to become familiar with the content. This allowed the researcher to get an overview of the data and make notes on any emergent or recurrent themes.

3. Themes arising from the transcripts were coded according to the topic and annotations were made on the transcript, and subsequently using a word processing programme.

4. A thematic framework was developed with main themes based on the research questions and objectives. Codes were charted into the themes and grouped into sub-themes. Any codes not fitting into any sub-themes or categories were put into an ‘other’ category. Themes for developing the framework were induced from the data based on topics arising in the interviews. Following discussion and reflection with supervisors, several revisions of the thematic framework took place to refine this further. All ‘other’ codes were reviewed to apply within the framework.

5. The framework was applied across the whole dataset with all coding labels on the transcripts entered onto the matrix. Separate pages were used for each major theme, and sub-themes were in headed columns. A separate row was used for each participant in the matrix to allow comparison across individuals and professional groups for each of the sub-themes.

6. Summaries of data were added to the matrix to capture the participant's views. Cross-referencing of interview transcript line numbers ensured an audit trail of evidence.

7. Mapping and interpretation of findings through discussion and reflection across individuals and professional groups to understand the essence of the phenomena and support explanation of meaning.

Themes from the qualitative part of the study were analysed separately to Phase 1 quantitative data before being synthesised across all parts of the project. Themes from the research were then compared with other relevant research nationally and internationally.

3.4 Ethical Considerations

As discussed in section 3.2.9, it is important to consider all ethical issues in designing a study. Voluntary participation, informed consent and ensuring privacy were particularly relevant due to the small size of this study and the business context within community pharmacies.

3.4.1 Informed consent

Voluntary written informed consent was obtained prior to the data collection in Phase 1 using the consent form in Appendix F and prior to the interview in Phase 2 using the consent form in Appendix N. All participants were advised they could withdraw their consent at any time by contacting the researcher, which was reinforced at the end of the data collection and interview as well

as through the participant information leaflet. Prior to obtaining consent, participants were given the opportunity to read about the study and express an interest in participating, giving participants time to fully consider the study requirements and their responsibilities. In interviews of district nursing staff who were identified through team leaders, they were given time to read through the participant information leaflet and ask questions of the researcher prior to discussing the consent procedure. Only if consent was given were interviews undertaken. Before obtaining written informed consent, the researcher confirmed that the participating pharmacist met the inclusion criteria for Phase 1. Two copies of the consent form were signed; one was kept by the researcher and the other by the participating pharmacist. In Phase 2, the participant kept a blank copy of the consent form with the signed copy being kept by the researcher. Only after providing written consent were participating pharmacies provided with a site-specific research file containing all pharmacy resources and data collection forms. The study procedure was confirmed and the researcher offered to provide a briefing session to pharmacy staff tailored to the pharmacy. This included providing an example script for pharmacy counter-staff to engage with customers when delivering the customer survey as part of the study. Utilising a personalised visit supported building relationships with pharmacy staff participating in the project and helped identify any specific issues for data collection at the individual pharmacy to ensure data quality and integrity.

3.4.2 Anonymity and confidentiality

Due to the small size of the study and the small number of pharmacies and healthcare professionals participating in Phase 2, it was particularly important that neither pharmacies nor healthcare professionals could be identified in any outputs from the study. The researcher ensured strict processes for confidentiality and anonymity between healthcare professionals, their employers and within the study. Personal details and any information that could identify participants were removed at the transcription stage and an identification number applied. Any vignettes used in any outputs from the

study were reported using an identifier number. By ensuring responses were anonymised, no individual participant could be identified.

Anonymised prescription data was collected from sequentially presented palliative care prescriptions to each pharmacy. This included the first half of the patient's postcode to determine geographical spread of the prescriptions and whether this location was supported by pharmacies participating in the locally commissioned service (LCS) for the supply of palliative medicines. Pharmacies recorded the patient's medication record (PMR) code on the data collection form to enable the pharmacist to go back and check on any details if there were any queries or missing data. The use of the PMR code was deemed necessary as all prescription forms are sent to the NHSBSA at the end of the month for payment. It would therefore not be possible for the pharmacist to go back and check data entry at the end of the data collection period without this code. The PMR code is unique to each pharmacy and does not allow patient identification outside the pharmacy.

Patients, their carers and agents were invited to complete a short 'customer survey' to collect feedback on their experience and outcome in accessing palliative care medicines on their visit. Participation in the customer survey was voluntary and responses were anonymous with no information collected that would identify the respondent. The survey was very short and could be completed while waiting for a prescription. When a customer was willing to participate in the survey but was unable to complete the form independently, pharmacy staff could offer to support them. A briefing session was provided for pharmacy staff to support them in this role. The customer survey was numerically linked to the data collection form providing a check on the validity of the pharmacy data; however, no patient identifiable data was collected.

All data were anonymised to ensure confidentiality of the participants. Audio-recordings and hard copies of data were kept secure in a locked filing cabinet, which only the researcher had access to at the St Luke's Hospice,

as agreed by STH research governance. All electronic data were stored securely on a password-protected computer that only the researcher had access to. Audio recordings were stored securely and destroyed on completion of the checked transcripts.

Interview participants were debriefed at the end of the interview to ensure all feelings were normalised due to the potential emotive nature of the topic. They were provided with information on contacting the researcher, the researcher's supervisor, and the Listening Friends Service at Pharmacist Support in case they had any concerns following the interview. None of the participant's contacted the researcher or the researcher's supervisor following the interview.

To facilitate the community pharmacists' participation, a financial payment was made to cover costs. This consisted of £100 paid to each pharmacy on completion of data collection in Phase 1 and £30 for each pharmacist consenting to interview in Phase 2. Funding was made available through Pharmacy Research UK. Any payment could be considered an inducement to take part therefore a strict process of briefing and consent was followed to ensure the pharmacists were volunteering without any coercion. The researcher did not approach individual pharmacists until they showed an interest in being involved in the research. Briefing information (see Appendix E) was distributed via the Sheffield LPC to gain interest and recruit potential pharmacist participants. This information was also shared with employers and other gatekeepers so they were aware of the research and agreed to site access.

3.4.3 Trustworthiness

As mentioned above, a number of strategies have been used to ensure trustworthiness of the data analysis. These methods include: member-checking of pharmacist transcripts, the most in-depth interviews conducted; quotations from the interview data to illustrate points in the analysis; the

researcher's own reflective stance and personal reflections throughout the data collection and analysis in a diary; supervisors with experience in qualitative methods and analysis providing regular support, and an audit trail of themes coded within the transcripts through to the final framework analysis in an Excel spreadsheet.

To increase honesty of results, the pharmacists selected for interview were all provided with a copy of their interview transcript for member checking. The pharmacists were asked to check they were happy with the contents of their interview in case they wanted to withdraw any statements, which, for example, may reflect on their employer. Four out of five pharmacists replied to say they were happy with the transcript and did not wish to make any changes with a further pharmacist not replying. Healthcare professionals were verbally asked if they would like to check a copy of their transcript but all declined.

As a registered pharmacist, the researcher has taken the professional standards of the General Pharmaceutical Council and their own professional ethics into account whilst conducting the research. Reflexivity during research means being open to different perspectives and acknowledging the researcher's own bias that could influence the results. Allowing scrutiny of codes and themes during the research, utilising outside experts as well as keeping comprehensive notes and an audit trail of changes in the developing analytical framework helped support reflexivity within the research.

3.4.4 Stakeholder involvement

The Sheffield LPC and Sheffield CCG were consulted during the research design process with the LPC agreeing to be a conduit with local community pharmacies to engage interest and be a point of contact as needed. Both continued as stakeholders during the research and continue into the dissemination process.

Patient involvement can greatly benefit research to ensure it is relevant to service users (Savory 2010; INVOLVE 2014). Due to limited life expectancy and ethical constraints, it can be difficult to formally engage with patients about palliative and end of life care (Gandy and Wilford 2012); so a proxy in the form of a Hospice Patient User Co-ordinator was asked to review the research design and ask for patient feedback where possible.

As part of the research, patients, their carers and agents were asked to complete a short ‘customer survey’ collecting feedback on their experience and outcome in accessing palliative care medicines when visiting the pharmacy. Patients were involved in the content of the customer survey as well as providing the impetus of the need for the research.

To strengthen the validity of the results and ensure any potential recommendations are of benefit to patients, the researcher proposes to take back the results through the Hospice Service User co-ordinator and discuss recommendations within a patient focus group. The resulting recommendations can then be focused and prioritised according to patient need before wider dissemination to commissioners and providers.

Chapter 4: Results of Data Collection in Community Pharmacies – Phase 1 Study

4.1 Introduction

This chapter presents the results of the first part of the study where prescription data and customer feedback was collected in participating pharmacies. The objectives within this phase were to:

- Investigate the prevalence of prescribing errors on palliative care prescriptions presented to a sample of community pharmacies.
- Explore whether the prescription error rate varies according to the practice, prescriber status, or the nature of the prescription.
- Establish whether errors on palliative care prescriptions are associated with time delays in obtaining medication.
- Establish the maximum waiting time for palliative care medications from the community pharmacy setting.
- Establish what processes exist for patient referral when palliative care medicines are not available.

The chapter has been structured so as to present demographic information on participating pharmacies and patients recruited into in the study before summarising the prescription data. Following this is a review of other interventions recorded, customer survey information, use of Summary Care Records (SCR), use of Electronic Prescription Service (EPS), and use of unlicensed medicines within the data collection. Summary statistics are presented before the chapter ends with a synopsis of what further information is needed to answer the objectives.

4.2 Demographics

Data collection took place in 3.9% (5/128) of community pharmacies in Sheffield, 40% (2/5) of the sample provide assured availability to palliative care medications as part of the locally commissioned service while 60% (3/5) of the sample are not part of the service but are expected to provide medicines ‘with reasonable promptness’ as part of the national pharmacy contract. The sample included two pharmacies that are classified as “independent” having five or fewer branches and three which are “multiples” having six or more branches. Two of the pharmacies provide services beyond normal opening hours (i.e. after 6pm weekdays) and two pharmacies are co-located with GP services.

A total of 75 data collection forms were completed by the five pharmacies, totalling 271 individual prescription items. A breakdown for each participating pharmacy is shown in table 4.1, which shows the mean (15), median (14) and range (2-33) of prescription items and forms per pharmacy.

Table 4.1 Data collection forms and prescription items

Pharmacy	Number of forms	Number of items	Average items per form
Pharmacy 1	20	139	6.95
Pharmacy 2	33	95	2.80
Pharmacy 3	14	22	1.57
Pharmacy 4	6	8	1.33
Pharmacy 5	2	7	3.5
Total	75	271	3.61
Mean per pharmacy	15	54.2	
Median per pharmacy	14	22	

The data was originally to be collected over a 4-week period in May 2016; however, due to slow recruitment of pharmacies and a lower than expected prevalence of palliative care prescriptions in participating pharmacies data collection continued up until the end of October 2016, meaning the true duration was between 3 and 6 months, depending upon the individual pharmacy. A pilot study to evaluate the availability of palliative care medications from community pharmacies was carried out by the Sheffield CCG between 7th February and 31st August 2011 at two community pharmacies in Sheffield; this involved 801 patient interactions across a 29-week period, which approximates at about 27 patient interactions per week so prevalence of palliative care prescriptions in the study was much lower than expected from the results of the pilot.

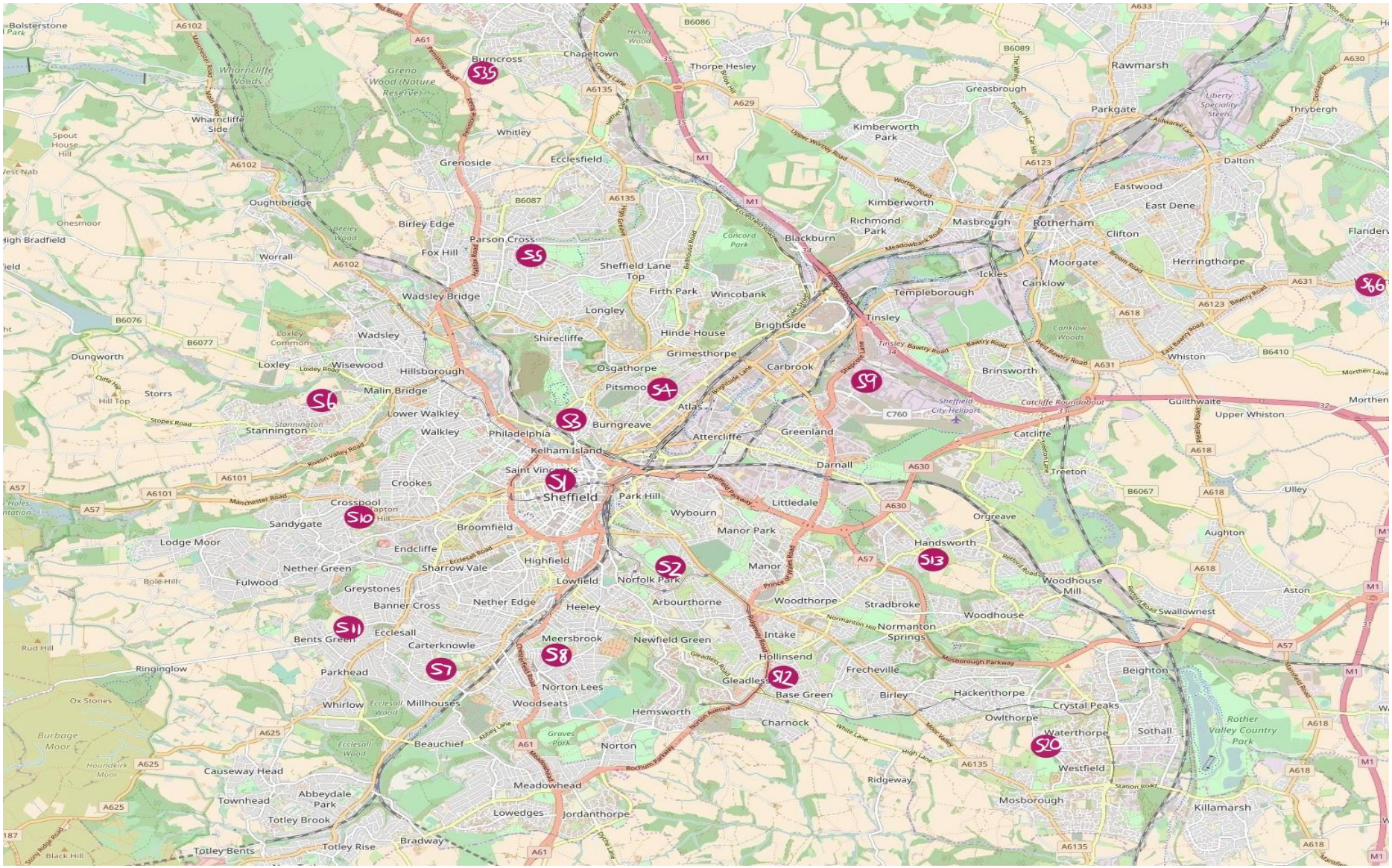
The prevalence of palliative care prescriptions in each pharmacy was estimated using dispensing figures from pharmdata.co.uk in December 2016 for each participating pharmacy. Due to monthly dispensing volume fluctuations, the average number of prescription items and forms dispensed in each pharmacy over a 6-month period was used and divided to obtain an average monthly figure. The average number of palliative care prescription items and forms per month was calculated using the data submitted by each pharmacy divided by the reported data collection period. An estimated prevalence of palliative care prescriptions in each pharmacy was calculated using the average number of palliative care prescription items divided by the average total dispensing figure per month. This estimated prevalence was also calculated for the average number of palliative care prescription forms. The estimated prevalence of palliative care prescription items per month ranged from 0.02 – 0.4% across the 5 pharmacies while the estimated prevalence of palliative care forms ranged from 0.01 - 0.13%.

269/271 prescriptions came from 16 Sheffield postcodes (0.7% (2/271) missing data) covering 20 GP practices, 2 OOH service providers and 1 specialist provider. The 16 postcodes covered 15/17 active Sheffield city postcodes (S1 – S35) and 1 Rotherham postcode (S66) out of 45 active Sheffield district postcodes.

Neighbourhoods showing the first part of the postcode from where prescriptions originate is shown in figure 4.1. Contains OpenStreetMap® data available under the Open Data Commons Open Database License by the OpenStreetMap Foundation. The cartography is licensed under the CC-BY-SA Creative Commons Attribution-ShareAlike 2.0 license with kind permission.

Figure 4.1: Map of Sheffield postcodes within prescription data

Map data © OpenStreetMap contributors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Sheffield
Burncross
Chapeltown
Thorpe Hesley
Rawmarsh
Parkgate
Greasborough
Kimberworth Park
Whitley
Grenoside
Ecclesfield
Oughtibridge
Birley Edge
Parson Cross
Fox Hill
Worrall
Sheffield Lane Top
Wadsley Bridge
Firth Park
Wincobank
Longley
Blackburn
Richmond Park
Masbrough
Rotherham
Clifton
Eastwood
East Dene
Dalton
Kimberworth
Templeborough
Tinsley
Brightside
Hinde House
Shirecliffe
Grimesthorpe
Osgathorpe
Carbrook
Brinsworth
Whiston
Herringthorpe
Moorgate
Ickles
Canklow
Wadsley
Loxley
Wisewood
Hillsborough
Malin Bridge
Dungworth
Storrs
Stannington
Lower Walkley
Walkley
Philadelphia
Burngreave
Pitsmoor
Atlas
Attercliffe
Greenland
Kelham Island
Darnall
Treeton
Catcliffe
Guilthwaite
Upper Whiston
Crookes
Crosspool
Sandygate
Broomfield
Endcliffe
Lodge Moor
Nether Green
Sharrow Vale
Highfield
Park Hill
Wybourn
Littledale
Manor Park
Orgreave
Handsworth
Aughton
Ulley
Woodhouse Mill
Aston
Swallownest
Fulwood
Greystones
Banner Cross
Nether Edge
Heeley
Lowfield
Norfolk Park
Arbourthorne
Woodthorpe
Stradbroke
Woodhouse
Normanton Springs
Intake
Meersbrook
Newfield Green
Hollinsend
Frecheville
Beighton
Bents Green
Ecclesall
Carterknowle
Parkhead
Ringinglow
Millhouses
Whirlow
Norton Lees
Woodseats
Gleadless
Base Green
Birley
Hackenthorpe
Crystal Peaks
Hemsworth
Charnock
Owlthorpe
Waterthorpe
Sothall
Rother Valley Country Park
Beauchief
Norton
Ridgeway
Westfield
Mosborough
Killamarsh
Causeway Head
Townhead
Abbeydale Park
Totley Brook
Totley Rise
Totley Bents
Bradway
Meadowhead
Lowedges
Jordanthorpe

From the 75 forms presented to the pharmacies in the study, pharmacy staff identified 40 as being regular users of the pharmacy while 35 were not regular pharmacy users. Table 4.2 compares regular and non-regular users according to whether the pharmacy is in the LCS service.

Table 4.2 Use of pharmacy

Use of pharmacy	**Pharmacy not in LCS (%)**	**Pharmacy in LCS (%)**	**Total (%)**
Regular pharmacy user	23 (82.1)	17 (36.2)	40 (53.3)
Not regular pharmacy user	5 (17.9)	30 (63.8)	35 (46.7)
Total	28	47	75

4.3 Prescription Data

Table 4.3 shows that 86% (233/271) of prescriptions in the sample were written by GPs during normal surgery hours and 12.2% (33/271) were from OOH providers. There were no prescriptions written by nurse or pharmacist non-medical prescribers in the sample.

Table 4.3 Prescription data

Prescriber type	Number of items	% of total
General Practitioners	233	86.0
Out of hours' providers	33	12.2
Specialist palliative care team	5	1.8
Non-medical prescribers	0	0
Total prescriptions	271	

Prescriptions were generated as per the methods presented in Table 4.4, computer software was used for 90.4% (245/271) of prescription items and 8.1% (22/271) were handwritten.

Table 4.4 Method of prescription generation

Method of prescription generation used	Number of items	% of total
Handwritten	22	8.1
Computer generated	245	90.4
Electronic (EPS)	0	0
Missing data	4	1.5
Total prescriptions	271	

The time when prescriptions were presented to the pharmacies was classified as either within GP surgery hours or OOHs. OOHs is classified as any time after 6pm weekdays, and any time on a weekend or bank holiday as well as times when the GP surgery normally closes e.g. on Thursday afternoons. As presented in Table 4.5, 28.4% (77/271) of prescriptions were presented to pharmacies outside GP opening hours, 42.9% of these (33/77) were from OOH providers. The remaining 64.9% (176/271) were presented during GP opening hours, in 6.6% (18/271) of forms data on the time of presentation was missing.

Table 4.5 Time prescription presented to pharmacy

Time prescription presented	**Number of items**	**% of total**
Outside GP opening hours (OOH)	77	28.4
Within GP opening hours	176	64.9
Missing data	18	6.6
Total prescriptions	271	

In 68.3% of cases (185/271) the medication was needed urgently. Urgent medications were indicated by the pharmacy user on the customer survey, or were identified by pharmacy staff following a conversation with the pharmacy user. Pre-determined categories of urgent items were also identified by the researcher so that all items prescribed by an OOH or specialist palliative care provider, all handwritten items and those issued as acute prescriptions were within the urgent category. Table 4.6 classifies all urgent prescriptions by method of generation and Table 4.7 classifies those that were presented OOHs by urgency and method of generation.

Table 4.6 Urgent prescriptions: method of prescription generation

Method of prescription generation used	Number of items	% of total
Computer generated	159	85.9
Handwritten	22	11.9
Missing data	4	2.2
Total urgent prescriptions	185	

Table 4.7 Urgent Prescriptions: method of generation and out-of-hours (OOH) presentation

Urgency and method of prescription generation	Number of items	% of total
Urgent, computer generated, presented OOH	54	70.1
Urgent, handwritten, presented OOH	18	23.3
Presented OOH but not urgent	1	1.3
Missing data	4	5.2
Total OOH prescriptions	77	

4.3.1 Analysis of drugs requested

42.1% (114/271) of items in the sample were for controlled drugs (CDs) in schedule 2 or 3 and 49.8% (135/271) were for subcutaneously (sc) administered medicines; 24.7% (67/271) of items were for subcutaneous CDs. Of the 135 subcutaneous prescription items requested, 90.4% (122/135) were formulations on the locally commissioned service (LCS) palliative care stock list. Formulations requested not on the stock list included diamorphine vials instead of ampoules, midazolam injection in strengths other than 10mg/2ml, clonazepam injection 1mg/ml and various sizes of water for injection.

4.3.2 Prevalence of prescription errors

Legal prescription errors arose in 1.1% (3/271) of prescriptions in the sample, all of which did not specify a dose on a subcutaneous controlled drug given via a syringe driver. Two of these legal errors were resolved through a legally permitted technical change by the pharmacist; one following a telephone call to a nursing home to verify the syringe driver prescription administration record, which was in the patient records, and the other through using the pharmacy PMR to verify the previous dose administered in a prescription that was presented outside GP surgery hours. The third legal error required a telephone call to the GP to request a new prescription be issued with the correct dose instructions.

Non-legal errors arose in 3% (8/271) of prescriptions due to a variety of reasons that have been classified as administrative or clinical errors. Administrative errors such as medicine out of stock with supplier, alignment of prescription quantities and changing the prescription to an alternative strength of an urgently required subcutaneous controlled drug to enable supply occurred in 1.1% (3/271) of the sample. Clinical errors included information incomplete, wrong dose prescribed, wrong strength prescribed and allergy to the prescribed product occurred in 1.8% (5/271) of prescriptions.

Table 4.8: Prescription errors and method of prescription generation

Prescription generation method	No error	Legal errors	Non-legal errors (administrative: clinical)
Computer generated	237	3	5 (3:2)
Handwritten	19	0	3 (0:3)
Missing data	4	0	0

Table 4.8 summarises legal and non-legal errors per method of generation. Non-legal errors are categorised further into those that are administrative and those that are clinical. There was insufficient evidence of a difference between the number of errors and the prescription generation method (Fisher's Exact 2-sided test, $p = 0.052$). There was insufficient data to compare errors between practices or prescribers except all legal errors occurred on computer-generated prescriptions from NHS GPs rather than OOH GPs. No handwritten prescriptions contained any legal errors. In the case of the 8 non-legal errors these occurred across both computer-generated and handwritten prescriptions as well as NHS and OOH GPs.

4.4 Promptness of Supply

The following tables' present collated data for pharmacies within the LCS compared to pharmacies not participating in the LCS to compare promptness of supply for:

- all urgent prescriptions (Table 4.9), this includes drugs on the LCS stock list and drugs not on the stock list;
- subcutaneous medicines (Table 4.10), of which 90% were on LCS stock list;

- controlled drugs (Table 4.11), which includes enteral and topical formulations which are not on the LCS stock list.

In each case the time taken has been calculated from when the prescription is dropped off to the pharmacy dispensary by the pharmacy user or the GP surgery to the time when the prescription was completed and ready for collection or delivery. Median, minimum and maximum times have been calculated as well as upper and lower quartiles. The time taken in each scenario is predicated by stock availability in the pharmacy at the time the prescription is presented.

Table 4.9 Urgent prescriptions

	LCS pharmacies (%)	**Non-LCS pharmacies (%)**
Total no. urgent prescriptions (Px)	105 (56.8)	80 (43.2)
No. Px for which time data missing	67 (63.8)	6 (7.5)
No. valid Px for analysis	33* (31.4)	74 (92.5)
Minimum time taken (hr.min)	0.03*	0.10
Median time taken (hr.min)	0.10*	5.00
Maximum time taken (hr.min)	3.39	47.15
Lower quartile time taken (hr.min)	0.08*	1.00
Upper quartile time taken (hr.min)	0.11*	26.30

**Five urgent prescriptions excluded from analysis where minimum time was 0 minutes where user sent to another pharmacy to obtain urgent supplies to prevent skewing results*

Urgent prescriptions were analysed and compared across pharmacies. There were 112 cases, however, five prescriptions were recorded at 0 minutes where one of the requested items was not available and the pharmacy user had to obtain the prescription elsewhere. Removing these five prescriptions left 107 valid cases for analysis across the five pharmacies. The median time taken for all urgent prescriptions across all participating pharmacies was 2 hours with the range between 3 min and 47.15hr.min. The median time taken within LCS pharmacies was 10 min and non-LCS pharmacies was 5 hr; an independent samples median test was calculated (p=0.002). At a significance level of 95% the medians of total time between LCS and non-LCS pharmacies are not the same with the time taken within non-LCS pharmacies being significantly longer than LCS pharmacies. Due to low numbers of prescriptions and missing data no reliable comparison could be made between individual participating pharmacies.

The analysis does not account for confounding variables including time of day, prescription numbers, number and type of staff working in the pharmacy at the time the prescription was presented. The missing data and presence of confounding factors therefore limit interpretation of the results.

Table 4.10 Subcutaneous medicines (via syringe driver or anticipatory)

	LCS pharmacies (%)	Non-LCS pharmacies (%)
Total no. s/c prescriptions (Px)	100 (74.1)	35(25.9)
No. Px for which time data missing	65 (65.0)	6 (17.1)
No. valid Px for analysis	30* (30.0)	29 (82.9)
Minimum time taken (hr.min)	0.03*	0.27
Median time taken (hr.min)	0.10*	21.18
Maximum time taken (hr.min)	0.30	146.00
Lower quartile time taken (hr.min)	0.08*	1.00
Upper quartile time taken (hr.min)	0.10*	26.30

**Five urgent prescriptions excluded from analysis where minimum time was 0 minutes where user sent to another pharmacy to obtain urgent supplies to prevent skewing results*

Prescriptions for subcutaneous medicines were analysed and compared across pharmacies but there were only 59 valid cases for analysis after removal of five cases where minimum time was recorded as 0 minutes due to prescription items not being available at the pharmacy. The median time taken for all subcutaneously administered medicine prescriptions was 27 mins with a range from 3 min and 146 hours. The median time taken within LCS pharmacies was 10 min and non-LCS pharmacies was 21.18 hr.min; an

independent samples median test was calculated (*p*=0.801). At a significance level of 95% there is no difference between the medians of total time between LCS and non-LCS pharmacies in dispensing subcutaneous medicines. Due to low numbers of prescriptions and missing data no reliable comparison could be made between individual participating pharmacies. Again the analysis does not account for confounding variables at the time the prescription was presented limiting the interpretation of the results.

Table 4.11 Controlled drug prescriptions

	LCS pharmacies (%)	**Non-LCS pharmacies (%)**
Total no. CD Prescriptions (Px)	68 (59.6)	46 (40.4)
No. Px for which time data missing	48 (70.6)	3 (6.5)
No. valid Px for analysis	18* (26.5)	43 (93.5)
Minimum time taken (hr.min)	0.03*	0.10
Median time taken (hr.min)	0.10	23.00
Maximum time taken (hr.min)	5.45	171.30
Lower quartile time taken (hr.min)	0.08*	2.30
Upper quartile time taken (hr.min)	0.10*	26.40

**Five urgent prescriptions excluded from analysis where minimum time was 0 minutes where user sent to another pharmacy to obtain urgent supplies to prevent skewing results*

Prescriptions for controlled drugs were analysed and compared across pharmacies, which resulted in 61 valid cases for analysis after removal of two cases where minimum time was recorded as 0 minutes for controlled drugs when prescription items not available at the pharmacy. The median time taken for all controlled drug dispensed palliative prescriptions was 4.47 hr.min with a range from 3 min to 171.3 hr.min. The median time taken within LCS pharmacies was 10 min and non-LCS pharmacies was 23 hr; an independent samples median test was calculated (p=0.0450). At a significance level of 95% there is a likely to be a difference in the medians of total time between LCS and non-LCS pharmacies in dispensing controlled drug items.

4.4.1 Effect of errors on promptness of supply

The effect of legal errors on prescriptions for subcutaneous medicines was minimal within the sample as these errors were resolved within 10-30 minutes.

4.5 Other Interventions

Only legal, clinical and administrative errors were recorded by the pharmacies during the data collection. One administrative error was noted to have been corrected through a medicines use review (MUR) to align prescription quantities.

4.6 Customer Survey

As presented in Table 4.12, 73.3% (55/75) of pharmacy users completed the patient/carer survey. In 65.5% of cases (36/55) the pharmacy user was collecting a prescription for someone else, 1.8% (1/55) collecting for both themselves and someone else and 32.7% (18/55) were collecting for themselves. In 21.8% (12/55) of cases pharmacy users stated they were referred to the pharmacy by a health care professional. Referrals could include a referral to the specific pharmacy or an inter-pharmacy referral when

the first pharmacy did not have the requested items. In 72.9% (40/55) surveys completed, the pharmacy user indicated that the medication was needed urgently and 56.4% (31/55) contained subcutaneous medicines. In 80% (44/55) of cases patients reported they received all their medicines, this increases to 89.1% (49/55) if patients who received a part-supply of their medication or reported that the medication was not required urgently are included. In 20% (11/55) of cases at least one medicine was not available. In 54.5% (6/11) of cases medicines were urgently needed but not available. Pharmacy users completing the survey had to go to more than one pharmacy to get their prescription fulfilled in 18.5% (10/54) cases.

Table 4.12: Customer survey findings

	Number	Percent (%)
Customers completing survey	55/75	73.3%
Patient collected own prescription	18/55	32.7%
Someone else collected prescription	36/55	65.5%
Customers waiting in pharmacy	34/75	45.3%
Customer needed to go to more than 1 pharmacy for medicines on the prescription	10/54 (1 missing data entry)	18.5% of those completing surveys *
Prescription included urgent medicine(s)	40/55	72.7%
All medication on prescription available for supply	44/55	80.0%

**The true incidence overall may be as low as 13.3% (10/75) of all observations*

Pharmacy users used a variety of methods to collect prescriptions 45.3% (34/75) opting to wait in the pharmacy for their prescription while 16.0% (12/75) had a delivery service. In 25.3% (19/75) of cases pharmacy users could collect their prescription items straight away. This would suggest that the prescription items were on a repeat authorisation from the GP and sent

directly to the pharmacy for dispensing and collection rather than being dropped off by the customer. In 12.0% (9/75) of cases customers chose to come back to collect their medicines.

4.6.1 Descriptive data on customer surveys

When pharmacy users reported that not all items on the prescription were available they were given the option of completing a free-text section to explain how they intended to get these items. Tables 4.13 and 4.14 present the descriptive and free-text data from pharmacy users where not all medicines were available. Information pharmacy users reported is presented within quotation marks while pharmacy staff comments are not contained within quotation marks.

Table 4.13: Customer surveys: descriptive data

	Number of customers reporting	**Percent (%)**
One or more prescription items not available	11/55	20.0%
No supply made and urgent prescription item	5/11	45.5%
Free-text section completed	6/11	54.5%
Free-text section left blank	5/11	45.5%

Table 4.14: Customer surveys: free-text data

Prescription no.	Prescription Urgent	Item not available	Free-text section completed (If any items are NOT available please explain how you will get these)
2	Yes	Diamorphine 10mg vials	Left blank
13	Yes	Part supply made	'collect tomorrow'
27	No	Zomorph® 30mg caps	Left blank
40	No	Butec® 5 patch no stock Longtec® part supply	'call back at a later date'
42	Yes	Diamorphine 5mg injection	return tomorrow to collect diamorphine
46	Yes	Dexamethasone 3.3mg/ml injection	dexamethasone was out of stock – collecting tomorrow
62	Yes	Midazolam 5mg/5ml injection	Alternative pharmacy
64	Yes	Diamorphine 5mg ampoules	'Try another pharmacy'
68	Yes	Unclear as not all items specified on form	Left blank
72	No	Part supply made	Left blank
75	No	Part supply made	Left blank

The customer survey included a question ‘Are there any things that could have been improved to make your visit better?’ which was either blank or this section was struck through in 76.4% (42/55) of surveys. Customer comments made on the remaining 13 surveys are summarised in Table 4.15.

Table 4.15: Customer survey: descriptive data on improving services

Prescription no./s	**What could be Improved**
6, 25	‘No’
4, 11, 40	‘None’
31	‘No fine’
32	‘No staff were helpful’
44	‘Nothing – excellent and quick service’
45	‘No – very happy with the service provided today’
47	‘Friendly service under difficult circumstances’
49	‘No staff really friendly and helpful. Service was quick and efficient’
54	‘Nothing much that would make it better but I phone in advance to make sure my items are in stock’
64	‘Keep a stock of all required items’

4.6.2 Use of pharmacy

Where customers completed a survey they could indicate whether this was their usual pharmacy, convenient for them, one of several pharmacies that they used or if they were referred to the pharmacy. This data differs slightly to the pharmacy reported data presented in table 4.2, which is obtained from the pharmacy computer system, since this is reported by customers who may not be the patient themselves.

Table 4.16 summarises the customers' use of the pharmacy for those pharmacies in the LCS and not in the LCS.

Table 4.16: Customer survey reported use of pharmacy

Use of pharmacy	Pharmacy not in LCS No. (%)	Pharmacy in LCS No. (%)	Total
Convenient	2 (18.2)	6 (13.9)	8 (14.8)
Referred to the pharmacy	0 (0)	12 (27.9)	12 (22.2)
One of several pharmacies used	0 (0)	11 (25.6)	11 (20.4)
Usual pharmacy	9 (81.8)	14 (32.6)	23 (42.6)
Total	11	43	54*

**Missing data on one survey*

4.7 Referrals

In 21.8% (12/55) of the sample, pharmacy users were referred to a pharmacy that is not the patient's regular pharmacy to get their palliative care prescription fulfilled. Of the 12 referrals 41.67% (5/12) visited more than one pharmacy while 58.3% (7/12) only went to one pharmacy. Table 4.17 summarises referrals and whether the user had to go to more than one pharmacy.

Table 4.17: Referrals and multiple pharmacy use

Provider	**Only 1 pharmacy used** **No. (%)**	**More than 1 pharmacy** **No. (%)**
Referrals from GP surgery	3 (42.9)	3 (60)
Referrals from OOH providers	3 (42.9)	2 (40)
Referrals from SPCT	1 (14.3)	0
Total referrals	7	5

There is the possibility that customers who visited more than one pharmacy were referred by another pharmacy. This figure could be as much as 8/55 (14.5%) if all referred customers and those that use several pharmacies are included though it is impossible to verify as this data was not specifically requested in the survey.

4.8 Continuity of Care towards the End of Life

Customers collecting subcutaneous medicines for care near the end of life were more likely to visit a pharmacy that is not the patient's usual pharmacy.

Subcutaneous medicines for end of life care were prescribed on 42/75 (56.0%) of prescription forms in the study and in 34/42 (81.0%) cases these were taken to a pharmacy that is not the patient's usual pharmacy as depicted in table 4.18. Of the 55 customer surveys completed 31/55 (56.4%) presented prescriptions that contained subcutaneous medicines with 31/31 (100%) being collected by someone else besides the patient.

Table 4.18: Subcutaneous medicines at end of life - continuity of care

	No subcutaneous medicines for end of life care no. (%)	**Subcutaneous medicines for end of life care no. (%)**
Regular use of the pharmacy	32 (97.0)	8 (19.0)
Not usual pharmacy	1 (3.0)	34 (81.0)
Total	33	42

4.9 Use of SCR/EPS

SCR was not used for any of the prescriptions in the sample. No prescriptions were sent via EPS. At the time of the data collection EPS had not been rolled out for controlled drugs in England.

4.10 Unlicensed Medicines

The only unlicensed medicine in the sample was clonazepam 1mg/ml injection, which was prescribed at an incorrect dose. This injection was available in the pharmacy, however, it is unclear what affect the error had as the customer survey was not completed and the time completed was missing from the data collection form.

4.11 Summary of Findings

The results from the pharmacy data collection demonstrates that a high proportion of palliative care prescriptions in primary care are required urgently with many containing subcutaneous medicines or coming from OOH prescribers. Legal errors on controlled drug prescriptions were more common on computer generated prescriptions for subcutaneous controlled drugs, with no errors on hand written prescriptions observed. Legal errors did not result in significant delays in obtaining medication, however, not having the required medicines in stock in the pharmacy did result in delays, which were significant in pharmacies not commissioned to provide the palliative care list of drugs. There is high compliance with prescribing drugs on the local palliative care formulary. Different strengths of midazolam injection caused some confusion. Approximately one in five customers had to go to more than one pharmacy to get urgently required palliative care medication, with one in two customers referred by a healthcare professional needing to go to more than one pharmacy.

In the next chapter, the results from the qualitative interviews with pharmacists and other healthcare professionals will be discussed.

Chapter 5: Findings from Interviews with Pharmacists and Other Healthcare Professionals – Phase 2 Study

5.1 Introduction

This chapter presents the qualitative analysis and findings from interviews with community pharmacists and other healthcare professionals working in the community, in both generalist and specialist roles, to ascertain factors causing delays in accessing palliative medicines and determine the scope of the community pharmacist's role in palliative care. The emergent thematic framework arising from the analysis following the method set out in chapter 3 is provided and then verbatim quotes from study participants are used to demonstrate the findings. A recap of the aims and objectives in this phase of the study will be provided before describing the analysis.

5.2 Aims

To identify the barriers and facilitators to obtaining palliative care medicines in the community and understand factors that facilitate or limit the community pharmacist's role in palliative care.

5.3 Objectives

The specific objectives within the Phase 2 interviews were to:

- Identify factors from Phase 1 of the study causing delays in obtaining palliative medicines.
- Clarify factors from Phase 1 of the study facilitating or limiting the community pharmacists' involvement in providing palliative care services.
- Determine whether community pharmacies within an enhanced palliative care service fulfil more than a supply function.

- Explore the pharmacists' perceptions and experiences in the delivery of palliative care services.
- Explore whether the delivery of palliative care services within pharmacies has any effect on community pharmacy staff.
- Explore the future role of community pharmacists in palliative care according to the views of other healthcare professionals

5.4 Definitions

To support data analysis and interpretation participants have been organised into one of three specific groups as defined below. This protects individual participant's anonymity and confidentiality whilst aiding interpretation across professional groups. Each group contains between three and eight individuals as specified in the parentheses as follows: community pharmacists (5), general practitioners (GPs) (3) and community healthcare professionals (cHCPs) (8). The group "community healthcare professionals" comprised of district and community nurses, specialist palliative care team members, both medical and nursing, as well as a pharmacist working in the intermediate care team.

5.5 Data Analysis

Data analysis was conducted using the Framework method (Gale et al. 2013) where initially transcripts were reviewed by the researcher to familiarise themselves with the content. Data were then manually labelled and coded by annotating in the left-hand margin of the transcript and highlighting significant sections of the text. The initial labels used a combination of '*a priori*' labels based on the objectives of the research as well as 'emergent' concepts using both an inductive and deductive approach allowing any unexpected experiences to be captured (Gale et al. 2013). These codes were then organised into a framework using overarching themes based on the research questions. Sections of the text were summarised into the framework with

codes down each column and cases across each row. The framework was developed on an excel spreadsheet with separate pages within the spreadsheet for each overarching *'a priori'* theme. Two of the community pharmacist interviews were used to develop the initial framework with categories within each overarching theme changed iteratively in order to bring similar coded concepts together. Once the initial framework was developed this was then used for coding one of the healthcare professional interviews to ascertain how codes aligned with the framework.

Codes that did not fit within the framework were put in an 'other' category for discussion with supervisors. Once an initial framework was developed this was discussed with academics, researchers and postgraduate students at a meeting of the University of Bradford Medicines Optimisation Research Group (MORG), a cross faculty research group, as well as with two supervisors experienced in qualitative methods.

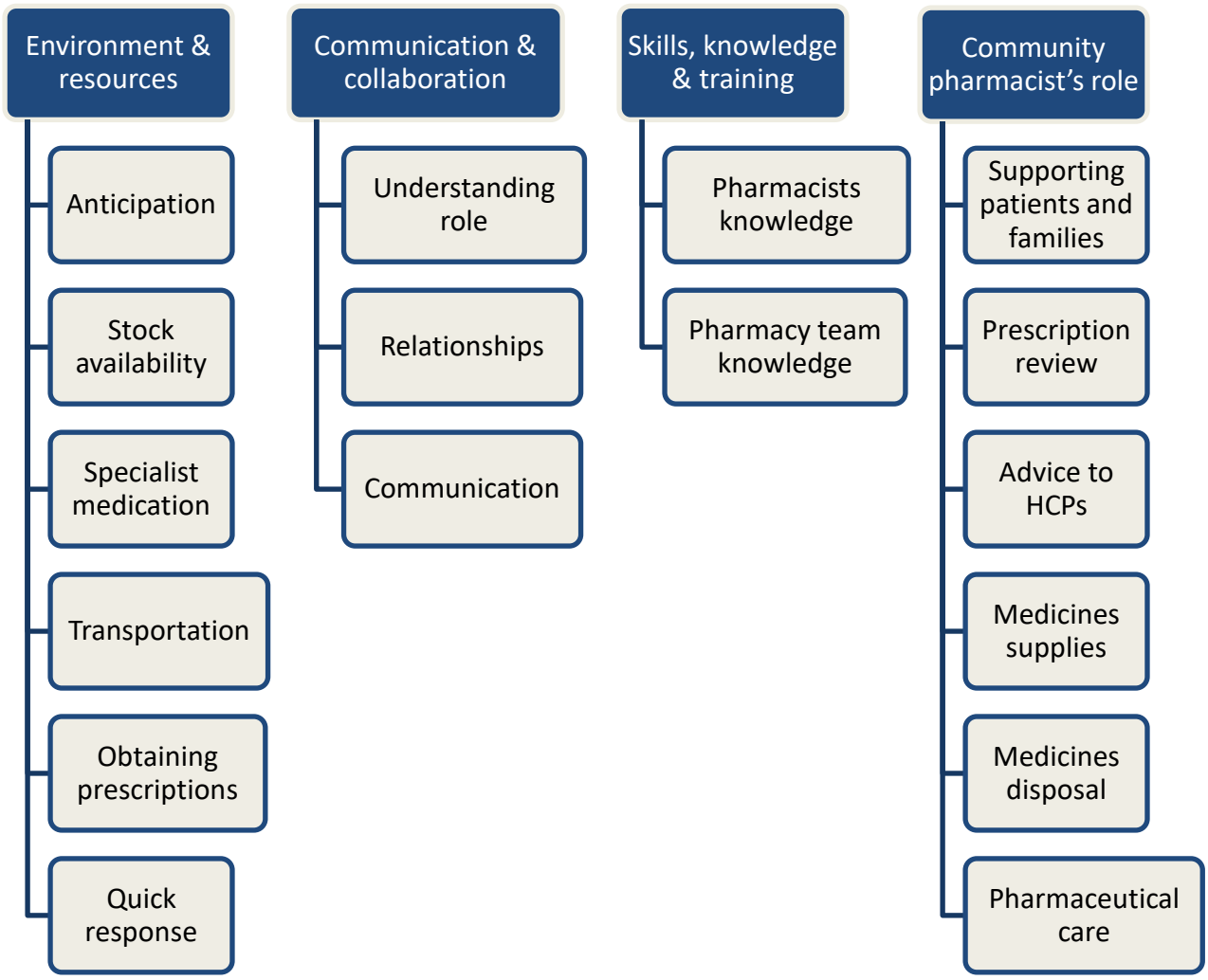
The initial thematic framework tree diagram can be found in Appendix T (Framework A: Jan 2017). The classification system presented problems since there was some overlap in the categories; for example, 1.9 and 2.4 both contained the need to have skilled and trained support staff in the pharmacy. Supervisors suggested fewer themes to categorise the data and to consider sub-levels within each category indicating whether a positive or negative consequence was experienced. Further to this MORG members suggested utilising a theoretical framework such as COM-B (Michie et al. 2011) to categorise themes to support interpretation and make recommendations on changing practice and processes. It was felt by the researcher that COM-B or another theoretical framework such as the theoretical domains framework (Michie et al. 2005) were more relevant to interventional studies rather than systems and processes addressed in this study. On reflection it was felt an inductive approach led by the data, the research questions and literature would help to explain the findings rather than a pre-existing framework and ensure the researcher was open to exploring the data in full.

A revision of the thematic framework was made to look at a smaller number of themes namely: timely access to palliative care medicines; current and future community pharmacist's role in palliative care; and healthcare professional relationships with an 'other' category. Sublevels within categories indicated codes with a positive or negative impact, which were highlighted in either red (negative impact) or green (positive impact), within the framework. At this point the "other" category included access to information and records, knowledge and training issues, IT systems, integration with CCG, judgements and risks as can be seen in the thematic framework in Appendix T (Framework B: April 2017).

At this point all 16 interviews were recoded and code labels were added onto electronic copies of the transcripts. Sections of data were then summarised into the revised framework adding a cross reference to the transcript line number so this could be traced back to the original data. The revised framework was further refined to bring together all categories relating to timely access across all professional groups thereby removing 'healthcare professional relationships' and 'other' themes (Appendix Q, framework C: May 2017). Electronic interview transcripts were recoded against the new framework again ensuring codes were copied and pasted into the revised categories. A process of comparing and contrasting cases and professional groups was used to ensure the framework was complete, this included looking for deviant cases and cells with no data by going back to reassess the original data to ensure nothing was missing. Where the 'other' category was used the original transcript was reread to understand the essence of what was being said and assess whether this should be recoded within the framework. For instance, the category specialist palliative care was removed, data recoded and added to integrated working, personal relationships and collaborative working or multiplicity of prescribing depending on the context. In order to support explanation, higher order abstraction of themes was developed, compared and contrasted across professional groups. Categories of data relating to the community pharmacists' role were brought together in a separate overarching theme; this topic being less well defined with

contribution coming mainly from community pharmacists themselves. The complete process of data analysis took approximately five months allowing immersion in the data and used an iterative, inductive and reflective process utilising support from supervisors. This approach helped to make sense of the interconnected data and as explained by (Holliday 2016) helped form the argument for the written findings that follow. The resulting themes and subthemes arising within the framework are represented in figure 5.1.

Figure 5.1: Framework analysis themes and subthemes



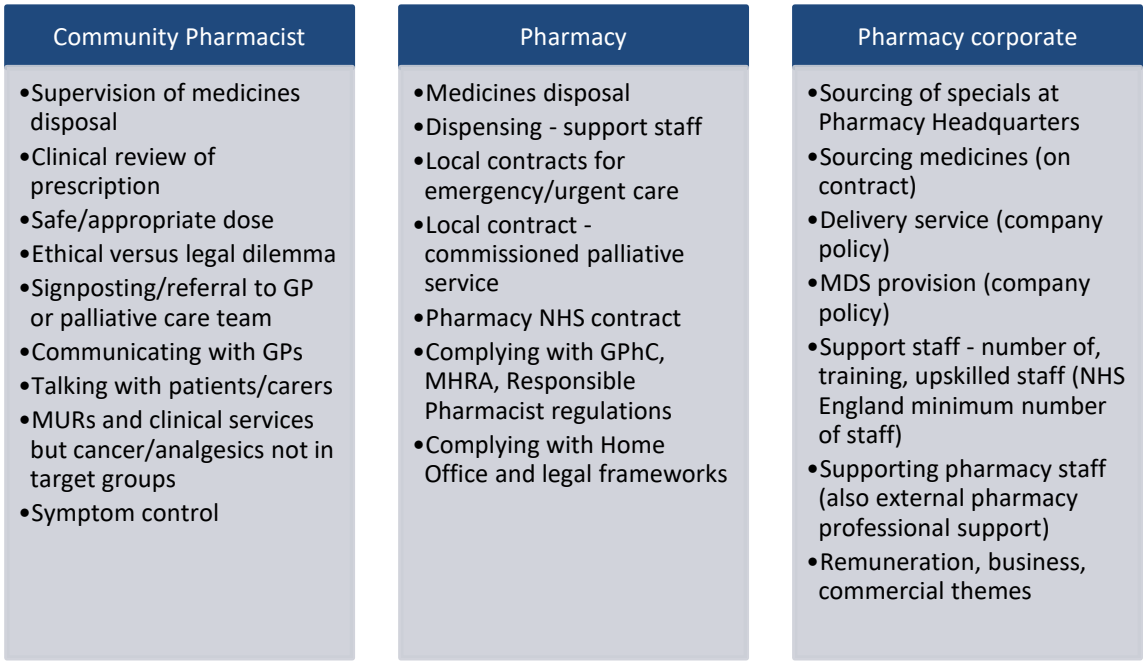
The final overarching analytical framework was further broken down into sub-categories as shown in table 5.1.

Table 5.1: Final Thematic Framework (July 2017)	
1.	**Timely access to palliative care medicines**
1.1	**Environment and resources**
1.1.1	Forward planning, anticipation and being resourceful
1.1.2	Stock availability in the pharmacy 1.1.3.1 Locally agreed formulary list
1.1.3	Accessing specialist palliative care medication
1.1.4	Transporting medications to the patient's house 1.1.4.1 Family involvement 1.1.4.2 Pharmacy delivery service
1.1.5	Obtaining correctly written prescriptions 1.1.6.1 GP computer systems 1.1.6.2 Effects of CD regulations
1.1.6	Responding quickly
1.2	**Communication and Collaboration**
1.2.1	Understanding role 1.2.1.1 Professional role and identity 1.2.1.2 Confidence and experience
1.2.2	Community Pharmacist relationships with other healthcare professionals
1.2.3	Communication within and across teams/care settings 1.2.4.1 Decentralisation/isolation 1.2.4.2 Information sharing 1.2.4.3 Integrated/collaborative working

1.3	**Skills/knowledge and training**
1.3.1	Pharmacists knowledge, skills and experience
1.3.2	Community pharmacy team knowledge, skills and experience
2.	**The Community Pharmacist's role in palliative care**
2.1	Talking with, supporting and referring patients and their carers (counselling and compliance)
2.2	Clinical review of prescription and checking safety
2.3	Providing advice and information, working with GPs and other healthcare professionals
2.4	Continuity of medicines supplies
2.5	Supervision of medicines disposal and pharmacy processes
2.6	Pharmaceutical care

To refine the community pharmacists' role further and support explanation it was necessary to determine those codes within the individual community pharmacist's sphere of practice compared to those situated within the pharmacy corporate body or managed by the pharmacy business. The open labelled codes were examined and reviewed with a community pharmacist working in palliative care to further refine these into each of the categories as described in figure 5.2.

Figure 5.2: Thematic codes in relation to community pharmacist, pharmacy and pharmacy corporate bodies



In preparation for interpretation, emergent themes were checked across cases and across professional groups to understand the similarities, differences and diversity across and between groups of healthcare professionals (Ritchie et al. 2014).

Quotes from participants have been coded to identify which group of healthcare professional they belong to whether; community pharmacist, GP or other community healthcare professional (cHCP) as well as the interview code. Where there is a risk of disclosure and it is not possible to use the quote, the identity has been removed and only the text quoted to ensure confidentiality and anonymity are not broken where professionals could be identified within the local context or where sensitive issues are discussed.

5.6 Findings

5.6.1 Demographics

Of the sixteen participants five were community pharmacists (who had also participated in the Phase 1 data collection). Eleven were other healthcare professionals: three were general practitioners (GPs), five were district or community nurses not specialising in palliative care, two were specialist palliative care team members (one doctor and one clinical nurse specialist), and one was a pharmacist working in intermediate care. The sampling frame of participating healthcare professionals is provided in table 5.2. Participants were considered to be representative of both generalist and specialist roles in palliative care.

All interviewees participated in an in-depth one to one interview lasting for approximately 51 minutes (median time of community pharmacist interview) and approximately 18.5 minutes (median time for cHCP and GP interviews) respectively. The cHCP and GP interviews were of a shorter duration due to time restrictions but all interviews except one covered all questions within the topic guide. One cHCP interview was terminated due to running over time.

Table 5.2: Sampling frame criteria and numbers of participants

	Sampling frame criteria	***Total number of participants***
Discipline	*District or Community Nurse*	*5*
	Pharmacist	*6*
	GP	*3*
	Specialist palliative care nurse	*1*
	Specialist palliative care doctor	*1*
Length of time since registration	*1-3 years*	*1*
	>3 years	*15*
Gender	*Female*	*6*
	Male	*10*
Completed palliative care training	*Community Pharmacists*	*4*
	Healthcare Professionals	*6*
If nurse / pharmacist	*Extended prescriber V150 or NMP*	*4 with another 2 in training*
If GP / pharmacist	*Experience of GP Pharmacist role*[3]	*4*

[3] The Sheffield Primary Care Pharmacy Programme provides one session of community pharmacist time in local GP practices each week as part of the GP Access Scheme (formerly Prime Ministers Challenge fund)

Following the data analysis two over-arching themes emerged from the data namely: timely access to palliative care medicines and the community pharmacist's role in palliative care, each of these will be considered in turn.

5.6.2 Timely access to medicines

Three subthemes were identified from the analysis: environment and resources; communication and collaboration; and skills and knowledge, with a number of categories and subcategories identified within each that are explored in more detail below.

The themes from the analysis on timely access to palliative care medicines have been incorporated into a schematic diagram to aid interpretation in figure 5.3.

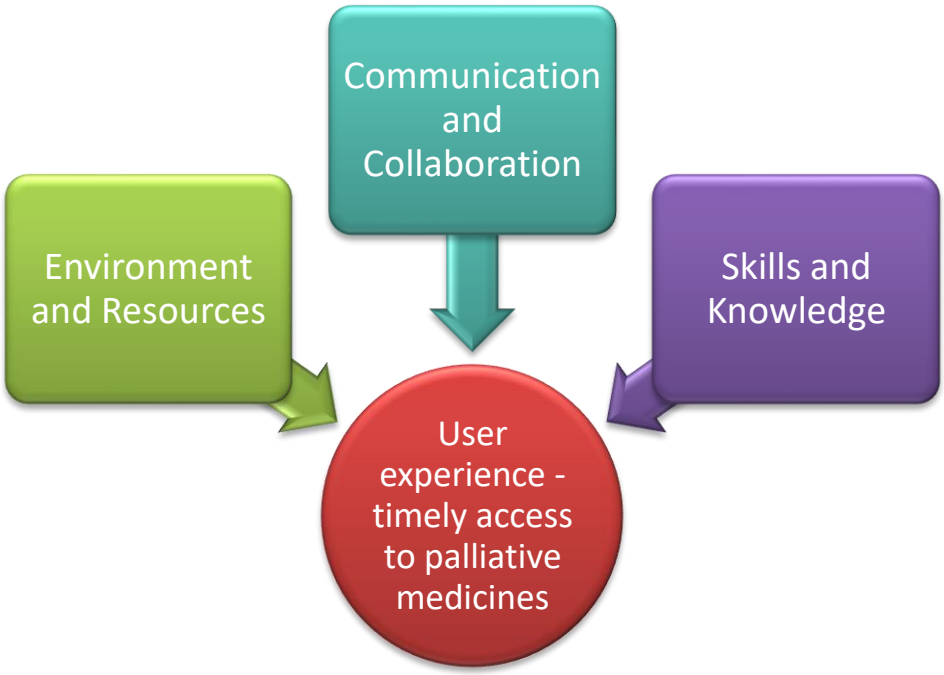


Figure 5.3: Schematic diagram of timely access to palliative care medicines

5.6.2.1 Environment and Resources

There was agreement that being able to secure rapid supply of medicines at times of changing needs, supported timely symptom management.

> *…if you get that prescription right and get it into the house quickly then that's going to help symptom control* (Community Healthcare Professional, cHCP9)

The data showed the critical importance of planning in advance through pre-emptive or anticipatory prescribing, local commissioning policies, development of GP computer systems, and digital transmission of prescriptions. I will go on to discuss these in more detail.

5.6.2.1.1 Forward planning, anticipation and being resourceful

Healthcare professionals were aware of the need to plan ahead and anticipate the need for palliative care subcutaneous medicines in advance for those patients who may deteriorate. It was also recognised that healthcare professionals, in particular nurses, working in the community needed to have the skills to do this.

> *…we all need to get a bit better with palliative care. So, we need to be pre-empting further ahead of time…but I think that comes with the skillsets in community* (Community Healthcare Professional, cHCP4)

It was recognised that although GPs may be happy to prescribe pre-emptive medication they cannot prescribe a syringe driver ahead of time so such prescriptions would always need doing urgently.

> *…a GP won't prescribe a syringe driver ahead of time…but that means we are always being [sic] having to do it now not in a more considered way* (Community Healthcare Professional, cHCP4)

Where patients were already on subcutaneous medication in a syringe driver the community nurses perceived it was their role to ensure sufficient medication had been ordered and was in the patient's house before the weekend and described a pre-weekend checking process. This was because fewer nurses worked on the weekend and it would not be possible, for example, to send staff to collect medications from a community pharmacy.

> *…whoever goes in on a Thursday or a Friday morning double checks that the drugs are there that we are not going to be needing anything, we go through them with a fine-tooth comb* (Community Healthcare Professional, cHCP5)

Sometimes it was possible to make a syringe driver with what was available in the house ensuring timely symptom management by being flexible and resourceful with what is available.

> *…I tend to look at what's available in the house…then order the stuff in for the next day…otherwise it can delay that patient getting a syringe driver* (Community Healthcare Professional, cHCP11)

Pharmacists and other healthcare professionals described how anticipation and forward planning impacted on their practice. Quantities on prescriptions were often perceived as a problem as illustrated by cHCP11 and cHCP6. The quantity of hyoscine butylbromide prescribed was not enough and pharmacies did not keep large quantities of medicines in for patients on syringe drivers.

> *…they might have a few of those* [hyoscine] *but then not enough,* [be]*cause you only get 10 in a box, and then that's not enough for a few days* (Community Healthcare Professional, cHCP11)

Other healthcare professionals perceived that pharmacies should be expecting the prescription and have the medication available where patients

had previously been on a syringe driver and the medicines remained the same.

> *…if someone's on a syringe driver…for quite a while…and their regular pharmacy can't get certain medications in even though it's expected for them to be on that…* (Community Healthcare Professional, cHCP6)

A deviant case was recalled where a nurse said the local community pharmacist intuitively spotted a trend of increased oxycodone use in a syringe driver and made a judgement to order additional stock in before the weekend.

> *…there was one particular patient who was on oxycodone huge doses, massive doses and I didn't ever have to say…I need enough to get me over the weekend he'd already spot the trend and he'd get enough in to cover me over so that was a really positive experience and showed how it can work well* (Community Healthcare Professional, cHCP4)

Contrary to this community pharmacist P5 perceived that phoning ahead for large quantities would be helpful.

> *…if a nurse was to phone up to say I'm going to ask for a prescription for 20 ampoules will you have the stock, 'no but I'll get it by 4 o'clock'…* (Community Pharmacist, P5)

Insufficient quantities had consequences for staff resources taking them away from completion of tasks and this could adversely impact on the management of the patient's symptoms.

> *…I just remember having to go* [to the pharmacy] *in the middle of doing a* [syringe] *driver because there weren't enough drugs* (Community Healthcare Professional, cHCP8)

> *…I went to review a patient…they were on pre-emptives and I called out-of-hours and say this patient needs a syringe driver now…they'll write it up, syringe drivers done and they'll leave...and you* [sic] *been thinking oh we haven't got any of these and we haven't got enough* (Community Healthcare Professional, cHCP6)

> *…the community pharmacy are* [sic] *forever doing owing's* [for CDs] *…so we then phone the pharmacy 'oh yeah we owe him some' and they've not thought that's important enough to send on* [deliver to the patient's house] (Community Healthcare Professional, cHCP1)

Pharmacists, on the other hand, explained a number of practical, non-clinical issues they had to take into account. These applied particularly in the case of controlled drugs. They could not send controlled drugs back to the wholesaler due to the rules and guidance for the licensing of pharmaceutical distributors (MHRA, 2017). This could cause consequences for the pharmacy and could affect the pharmacist's attitude as witnessed by cHCP5.

> *…we've only got very small CD cabinets…the more controlled drugs you keep the more issues you are going to have* (Community Pharmacist, P1)

> *…by the time you get a prescription sorted out they might not need it anymore in which case you face a storage problem…I can't just put it on a shelf* (Community Pharmacist, P5)

> *…we did have a patient who needed some ASAP took the script she* [pharmacist] *ordered them in the next thing the patient passed away and she* [pharmacist] *was not happy…* (Community Healthcare Professional, cHCP5)

Pharmacies' limited storage space for controlled drugs combined with their attempts to predict the quantities of stock that might be needed

sometimes led to an inability to fulfil prescriptions. The pre-weekend prescribing on Fridays could exacerbate an already challenging situation.

> *…we don't have an ability to be able to keep a lot* [controlled drugs] *and so we have a particular issue with the quantities that they write on the prescriptions sometimes which can impact on the next patient…* (Community Pharmacist, P4)

> *…once there was three people…all wanting palliative care things all on the same Friday afternoon…* (Community Pharmacist, P5)

There was some evidence of healthcare professionals informing pharmacies to check their stock levels and to keep more stock of particular drugs in when a regular supply was needed for instance when a patient was expected to continue on a syringe driver.

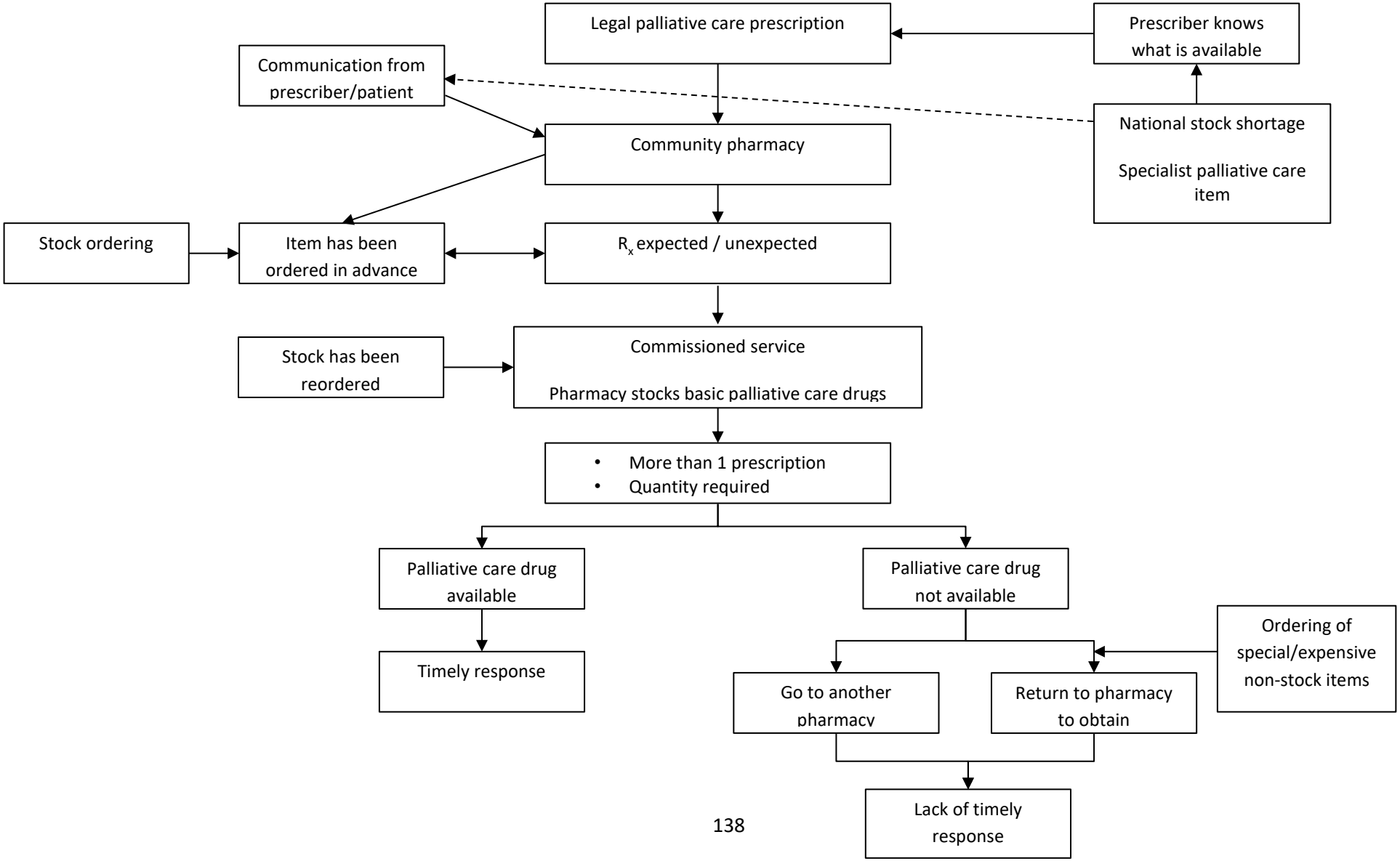
> *…this person is on this…they are going to be on it for a while it would be good if you could have a mind to your stock levels* (Community Healthcare Professional, cHCP9)

> *So, there was a patient…discharged from the hospital…and their local pharmacy didn't normally have methadone in but the pharmacist …picked that up…and said you know we'll make sure we've always got some…some* [pharmacists] *take that on themselves…other people might need prodding or directing towards it* (Community Healthcare Professional, cHCP9)

5.6.2.1.2 Stock availability in the pharmacy

Stock availability in the pharmacy was a key issue to ensure timely access for patients with data occurring across all interviews. Factors contributing to stock availability in the pharmacy are depicted visually in figure 5.4.

Figure 5.4 – Factors contributing to stock availability in the pharmacy



It was recognised by other healthcare professionals that pharmacies could not stock everything and may only have a limited quantity in stock. They also understood that in exceptional circumstances more than one prescription could be presented on the same day for the same items so the stock is not available.

> *…I can understand that they can't stock everything and they might have to work hard to get them…* (GP, HCP10)

Other healthcare professionals said they wanted more pharmacies to stock what they considered to be the very 'basic' palliative care medicines such as diamorphine, midazolam, haloperidol and hyoscine butylbromide, though others presumed most if not all pharmacies held stock of these drugs.

> *…they all hold some, but I know some don't hold specific ones or quantities (*Community Healthcare Professional, cHCP7)

> *…I tend to assume that they stock morphine, diamorphine, oxycodone and then the usual antiemetics…midazolam…* (General Practitioner, HCP10)

Many of the interviewees highlighted differing strengths of midazolam, oxycodone injection and sizes of water for injection to be issues.

> *…the big problem is midazolam…so many strengths…volumes of ampoules…the GPs just pick one…* (Community Pharmacist, P3)

> *…such a palaver getting hold of water for injection. The pharmacist rang me 5 times about water for injection…it wasn't available* (Community Healthcare Professional, cHCP11)

A pharmacist pointed out that even if pharmacies are open longer hours they still have the same cut off times for ordering drugs from the wholesalers so if the drugs were not available longer pharmacy opening hours did not help.

> *…wholesalers don't work longer opening hours so…if stock needs to be ordered the timescale for ordering that stock remains*

the same. So, 100-hour pharmacies will still have the same cut off time for placing orders and…the same delivery schedules as pharmacies who are open much less hours…if the stock's there it's great, but if the stock's not there it doesn't improve things just because they are open longer hours (Community Pharmacist, P1)

Most healthcare professionals - GPs, members of the palliative care team and community pharmacists - were aware of current and past national issues affecting availability of diamorphine and haloperidol, both commonly used palliative care medications, which had caused difficulty. It was pointed out that stock problems consume a lot of time both knowing when something is not available and when it becomes available again.

Its [stock problems] *one of the biggest I think irritating problems that we've had in the last year or two and is growing …it just consumes so much time…I guess with palliative we are just a bit more cautious to make sure the availability is there* (General Practitioner, HCP3)

I'd…be enquiring what medicines were available…I might know what I want to prescribe but there's no point if it's not there and it's going to lead to a delay (General Practitioner, HCP2)

Some community pharmacy computer systems had issues passing controlled drug orders between wholesalers when the usual wholesaler was showing that the product was out of stock. In some cases, pharmacy staff ended up ordering the controlled drugs as both a manual order in addition to a computer- generated order on the pharmacy computer system to ensure the medication arrived. This could result in double quantities of controlled drug stock arriving that could not be sent back.

We use electronic systems to order drugs so we actually did it as a manual order as well, so we actually ended up having double lots [of controlled drugs] *in* (Community Pharmacist, P3)

There could also be issues with the pharmacy computer system when ordering expensive or special items where the computer-generated order did not automatically replace stock issued against a dispensing label. This meant that pharmacy staff had to take care in ordering particularly sensitive items like palliative care medications to ensure stock was available in the pharmacy when expected.

> *…if there is a product which is particularly expensive it* [pharmacy computer system] *won't automatically order it…if it's on the computer menu but it's a special it will let you do the label but it won't order it…so with something that is particularly sensitive like palliative care [drugs] we look at the computer information…but it doesn't proffer the information you have to go looking for it…it might say 'regret no stock or out of stock' …you will try your third line wholesaler or try an adjacent pharmacy or you go back to the doctors* (Community Pharmacist, P5)

a) Locally agreed Formulary List

Use of a limited list or formulary of palliative care medicines was seen to support availability of palliative care medicines in urgent situations. This was evident even in pharmacies not part of a formal commissioned service who had worked with local GPs to instigate their own local list of palliative care medicines as well as those within the formal commissioned service.

> *…I have had conversations with the surgery to establish what I should keep…I gave that* [a palliative care list] *to the surgery and I said …which ones shall I keep*… (Community Pharmacist, P5)

> *…we went to them* [GPs] *and said, what are the most common drugs you would prescribe in palliative care for patients and they* [GPs] *came back with a list…so we would try to keep the stock in for what they specified* (Community Pharmacist, P3)

Even though such a formulary list was well established for commissioned pharmacies (see Appendix R), healthcare professionals in the community were not aware of the list's existence, which pharmacies kept the drugs or what drugs were on the list.

> *…relatives who are running right left and centre trying to get hold of these meds…there is a commissioned service…but we don't know who they are…* (Community Healthcare Professional, cHCP1)

Instead CHCPs relied on local knowledge or rang ahead to check whether the pharmacy had the necessary medication.

> *I don't know who's commissioned we just basically know which ones we go to that are more likely to have it…* (Community Healthcare Professional, cHCP4)

It was suggested that a citywide bulletin would help ensure everyone knew the formulary so pharmacies who were not commissioned to provide the service still had the option of keeping the drugs in. Interviewees thought that a bulletin would provide information to ensure a smoother supply of drugs.

> *…making sure we that we all work from a standardised formulary in palliative care and sharing that formulary with the pharmacies as well, at least then the pharmacists' have the opportunity to decide oh I'll keep that stock in or not…something like a CCG wide letter…like a formulary or just a bit of help with regards to obtaining the drugs…* (Community Pharmacist, P3)

> *…it's easy from my point of view to solve it, you send out the formulary drugs to every GP…and you tell everyone this is the drugs…stick to these* (Community Pharmacist, P4)

It was also identified that this can prove difficult to achieve.

> *…we have a list of drugs…I'm absolutely sure has been disseminated to everybody but getting clinicians to a) read it…and then retain it and remember …that's the particular one that they need to pick is very, very difficult* (Community Pharmacist, P4)

Some interviewees from non-commissioned pharmacies perceived that the commissioned pharmacies were being paid extra to stock drugs but were not providing anything different to the universal NHS contractual obligation to supply drugs with due promptness.

> *…it's not like a specialist service…you're being paid to hold a set amount of stock…you're not offering anything above and beyond from what I understand…* (Community Pharmacist, P1)

> *…it doesn't really make any difference…whether it's someone wanting vitamin capsules…or diamorphine ampoules…I'm under the same expectations to provide with due promptness…that's the contractual obligation* (Community Pharmacist, P5)

> *...we're talking about things that might…cost £5 to £10 it's no big deal and for the difference it makes to the patient that's not much money at all* (Community Pharmacist, P5)

For most pharmacies if they did not have the stock in or for commissioned pharmacies when the item was not on the commissioned list then it would invariably be 'next day'. Several staff raised this as being a problem. Healthcare professionals may not know what the cut off time is for the pharmacy when ordering medications for same day delivery.

> … [The pharmacy] *say 'oh it won't be in till tomorrow' …sometimes that's a bit too late really* (Community Healthcare Professional, cHCP1)

…I could go in now and say, 'I need these drugs' 'Oh I can get them in for 11 o'clock tomorrow morning' [exasperated laugh] *it's like that's not really very helpful, I need them now* (Community Healthcare Professional, cHCP7)

We can normally order things for the same day, if it's before midday we can get them [medicines] *for 4 o'clock that afternoon…* (Community Pharmacist, P2)

5.6.2.1.3 Accessing specialist palliative care medicines

Prescribing of non-standard formulations of some drugs and specialist palliative care medicines posed challenges. Methadone for example, in tablet or injection form was rarely a core stock item in most community pharmacies. Patients prescribed methadone for pain relief were usually under the palliative care team who then had to plan ahead and issue prescriptions well in advance of a patient running out.

…nobody's sure that they are on methadone or never mind who's prescribing it or dispensing it (General Practitioner, HCP2)

…like methadone you can't really get your hands-on methadone [injection] *from an average pharmacy…* (Community Healthcare Professional, cHCP6)

Difficulties in accessing other 'specialist' drugs for complex patients were reported, for example dexamethasone and clonazepam injection, which were not even on the commissioned service drugs list. In the case of clonazepam injection, healthcare professionals and some pharmacists were not aware that it is not licensed in the UK and had to be imported.

…we quite often use clonazepam in the syringe drivers…if you take it [prescription to the pharmacy] *…and ask them to order it in I will undoubtedly get a phone call to say it's not available, they*

can't get hold of it… (Community Healthcare Professional, cHCP11)

These disconnections in the supply chain sometimes had dire consequences for a patient. A case was reported where a patient at risk of a seizure, who could not swallow, had a long turnaround time to access dexamethasone injection.

…dexamethasone…for a patient with a brain tumour…we requested it at about 12 o'clock…by the time the district nurses had then got to the patient to make up the [syringe] *driver it was 10pm* (GP, HCP2)

5.6.2.1.4 Transporting medications to the patient's house

The location of the pharmacy, the distance to the patient's house and transporting the medication to the patient's house were also key factors that affected timeliness of accessing medication. Family involvement and pharmacy delivery services were identified as prominent sub-categories.

a) Family involvement

Community healthcare professionals perceived there was a significant burden for family caregivers who were involved in obtaining medications for patients near the end of life; nevertheless it was accepted that family caregivers should provide support in this area. This normally required having access to a vehicle.

…you know they can end up getting a lot of prescriptions and they are back and forth to the pharmacy…sometimes…that involves getting someone to do it for them or going in the car and that's hard but that's the nature of looking after someone with a terminal illness (Community Healthcare Professional, cHCP9)

…if they haven't got a car it's sometimes a bit tricky…in other pharmacies which are potentially more isolated…if you didn't

> *have a car it was particularly difficult to get to pharmacies that were perhaps larger, open longer hours and held more of the stock* (Community Pharmacist, P1)

In some cases, the stress for family caregivers was recognised and Healthcare Professionals "went the extra mile":

> [the pharmacy] *can be miles away from…the patient…they may not have transport and it's a huge stress* [with emphasis from cHCP11] *on families…to…pick up these medicines they get so frustrated…sometimes we have to...take that burden off them…* (Community Healthcare Professional, cHCP11)

Even though family caregivers were cited as being valuable in supporting the process of collecting the medication it was also recognised that this may affect community nursing response time. In some cases, nurses were doing all the work to collect drugs and start the syringe driver taking an appreciable amount of time and resources away from care of other patients to ensure timely access.

> *…quite often it is doing the full package…if you are relying on other people to do that* [pick up medications] *it could take a lot longer* (Community Healthcare Professional, cHCP11)

> *…we're getting the phone calls…you need to pick up…the family can't get 'em…I just feel sometimes that the pressure is on us to get it done* (Community Healthcare Professional, cHCP5)

> *…you have to get the family involved or delivery it's just that short amount of time of getting it done…* (Community Healthcare Professional, cHCP6)

b) Pharmacy delivery services

Pharmacy delivery services were generally felt to be helpful. However, other healthcare professionals were not necessarily aware that the NHS does not fund pharmacy delivery services or the terms and conditions for when delivery services were offered. It was also noted that *'…not all community pharmacies do deliver. I think a lot of them have to now; otherwise they would lose business'.*

> *…feedback I get from patients is that pharmacies are very helpful and they do delivery services…so I've had lots of good positive feedback whether the patient says 'oh that's fine they always deliver that's not going to be a problem, they'll sort it out'* (Community Healthcare Professional, cHCP9)

> *I think the most useful thing would be delivering medicines to a patient's house…I'm not sure…they are contractually obliged to do it or if that is something they do as a bit of a favour seems to be a bit of variation as to how freely that happens and some chemists…do charge if its certain times of day or something. I don't quite know what the rules are.* [GP, HCP10]

In cases where acute, urgent supplies of medication were ordered from a pharmacy that was not the patient' usual pharmacy there may be a charge applied for a delivery. Healthcare professionals were embarrassed that some pharmacies were charging families five pounds per delivery for medications at the end of life.

> *...is kind of awkward to ask the family to pay…especially when they…get medicines delivered almost every day…* (Community Healthcare Professional, cHCP11)

5.6.2.1.5 Obtaining correctly written prescriptions

Prescriptions were not seen as a barrier since most prescriptions were computer generated or where minor typographical errors were present the community pharmacists were able to amend these due to changes in CD regulations (Home Office 2015a).

> *…we don't generally have hand writing issues anymore. A lot of prescriptions are computer generated; we don't generally have that issue* (Community Pharmacist, P4)

> *…I think the prescriptions are written well particularly the computer-generated ones…I think most scripts come and go without too many problems* (Community Pharmacist, P2)

Very rarely did pharmacists need to contact the prescriber or OOH service to issue a new prescription. Most pharmacists preferred not to contact the OOH service due to the slow process and because the GP on duty OOHs had limited knowledge about the patient.

> *…I don't think I've ever…contacted the out-of-hours GPs in Sheffield. Mainly because it's a bit of a protracted process.* (Community Pharmacist, P4)

> *…you've got to ring the out-of-hours doctor to get a new script…they probably don't know any more about the patient,* [or] *have access* [to] *much more* [information] *than we've got and we are just asking them to write a script for a different strength that we have in stock* (Community Pharmacist, P2)

There was no evidence reported by interviewees of community nurses sorting out prescription queries before taking prescriptions to the pharmacy though one nurse commented:

> *…it's not you guys it's the prescription that's not done or it's the wrong prescription, it's not enough what they* [the patient] *need…* (Community Healthcare Professional, cHCP6)

Another nurse commented that the prescriptions should be sorted between the GP and community pharmacist and were not for the nursing team to get involved with.

a) GP Computer Systems

GPs stated that the computer was helpful for enabling them to generate a legal prescription. There was an auto-consultation for pre-emptive medication pre-loaded onto SystmOne a general practice clinical computer system that supported this and covers nearly 80% of practices in Sheffield.

> *…we now have an auto-consultation for pre-emptive prescribing…that seems to be helping cut down mistakes it just generates a standardised set of prescriptions* (GP, HCP10)

Some pharmacists reported instances where the GP clinical system was not so helpful and the wrong product was chosen leading to a delay in the patient obtaining the medication.

> *…we have a particular issue with incorrectly written prescriptions, and it's always midazolam. They always pick the one* [on the computer] *that's not on formulary…legally there's no problem with it but it's not formulary, it's not a regular stocked item* (Community Pharmacist, P4)

Community pharmacists mentioned that development of EPS should relieve problems with accessing correct prescriptions and be quicker too.

> *…obviously faxing is illegal whereas with an electronic prescription that would relieve that whole problem and probably speed things up…I think that would make a big difference* (Community Pharmacist, P2)

No EPS delivered prescriptions were reported in the study though it was noted that there could be a potential issue with EPS prescriptions coming in two parts since controlled drug prescriptions could not yet be issued on EPS due to the need for technical updates to GP clinical system prescribing software (HSCIC, 2017).

> *…electronic prescriptions…could potentially be an issue…I don't know if it happens with palliative…they'll* [GP] *send down electronic prescriptions for all the non-CDs…but…there's a CD script still at the surgery that we might not know about…*
> (Community Pharmacist, P2)

b) Effects of CD Regulations

Doctors and nurses were generally unaware of the affect CD regulations had on the pharmacist except GPs were aware of the need for legal prescriptions. Pharmacists all raised the limitations of the legal framework especially where this caused an ethical dilemma like the supply of medications at the end of life where they recognised they had a duty of care to the patient. All of the pharmacists could relay stories from the past where they had issued an illegal prescription where this was in the best interests of the patient *'So, I've done prescriptions that are illegal and then sorted those out afterwards because you don't want to delay treatment for these patients'. '*[The] *GP had phoned up…and said if they faxed us across* [a prescription] *can we get it to the patient…*[we] *handed it out before I'd even got the prescription in my hands.'* The pharmacists also felt their hands were tied by the legal framework that was very specific in what was allowed and considered they would be inviting trouble if they did not comply with the legal requirements. It was recognised this would be particularly difficult when the prescriber could not be contacted, if the pharmacist did not know the prescriber or for locum pharmacists who would be relying on pharmacy staff and the pharmacist the next day to resolve the issue. Where an illegal prescription could not be dispensed this could impact on timely access to the medication for the patient and necessitate a trip back to the GP or a call to the GP OOH service to

access a legal prescription. Whilst some pharmacists felt ethically they could justify their decision to 'bend the law' and issue medications on an illegal prescription at the end of life they also understood there was no option to 'break the law'. '*…if someone came to me at closing time, and said he's out of MST tablets… I send them to somewhere where they can get more tablets because I've got absolutely no option on that, if it's somebody who if I can bend the law without breaking it I will do but there's somethings where it…might be well intended but you can't do it'.*

A further problem identified by community pharmacists was the inability to alter legal prescriptions where they could not supply the requested product. '*…we haven't got the 10mg in stock but we've got 20*[mg]*, I think I would be more than capable of changing that…having to go back to the doctor to get the script changed isn't a good use of anyone's time particularly if this poor patient needs their diamorph*[ine].' This was further compounded when GPs had difficulty choosing the correct formulation from their computer's palliative care list as described in section a) above. This was noted particularly for midazolam and oxycodone.

> *…we've got three different strengths of oxycodone injection, and they* [GPs] *prescribe all three, and you might not have one, you might have the other…it's just so frustrating…you don't want to delay treatment for what is a really difficult time for the patient and the family…but unfortunately our hands are tied by the legislation and our ability to be able to alter any of these prescriptions* (Community Pharmacist, P4)

5.6.2.1.6 Responding quickly in the community setting

All healthcare professionals expressed time pressures in their day to day work that affected their ability to co-ordinate and respond quickly to patient needs, this was particularly heightened where patients' and carers' expectations were not managed after discharge from an inpatient setting

where they were expecting the same quick response to relief of symptoms in the patient's home.

> *…we are not the 4th emergency service but when people come out here* [in community] *to die we can't respond like you can in* [name of organisation] *but patient's relatives don't like that part of it and we literally …drop everything to do the drugs…it's just too much pressure sometimes for us to do it all* (Community Healthcare Professional, cHCP5)

There was recognition that pharmacies are a busy environment with chasing stock availability and Monitored Dosage Systems (MDS) issues consuming a lot of time. It was recognised that MDS or Nomad® boxes made it difficult to titrate drugs and respond quickly to the patient's symptoms.

> *Nomads are just growing exponentially with the aging population massive, massive burden for pharmacists* (GP, HCP3)

> *Patients that have Nomads there was quite a lot of liaison with the pharmacist and it could get a bit complicated because it was really hard to titrate things when people have got Nomads because you are back and forth and back and forth* [to the pharmacy] *you'd go back the week after and the new drug hadn't been put in* [the Nomad] (Community Healthcare Professional, cHCP11)

Community healthcare professionals expressed the opinion that if pharmacies just had the basic stock of palliative drugs available this would enable a quicker response to the patient's symptoms and avoid delays.

> *…I think if just more chemists had the bog-standard stuff in…* [Community Healthcare Professional, cHCP11]

> *…simple things like keeping a stock in for me of all the regularly used drugs…there* [a locality] *I would get a* [syringe] *driver up in an hour* [for a patient]*, because I knew worst case scenario down*

the hill into there [pharmacy]*, back out again. Whereas a lot of the pharmacies around here don't even keep the drugs in. So that's a delay…* [Community Healthcare Professional, cHCP4]

5.6.2.2 Communication and Collaboration

Under the subtheme of communication and collaboration the categories are: understanding role, community pharmacist relationships with other healthcare professionals and communication within and across teams with a further number of subcategories within these. Further details of these categories and subcategories are explained further below.

5.6.2.2.1 Understanding role

Within the category of understanding role there were two sub-categories: professional role and identity; confidence and experience.

a) Professional role and identity

Community pharmacists had a simplistic view of their professional role within palliative care that was limited in scope to providing what the doctor ordered; a traditional dispensing role.

> *…but the important thing is to just recognise your role is trying to provide what the doctor wants and what the nurses want for that patient, because they've assessed the patient personally and they consider this to be the best treatment…* (Community Pharmacist, P5)

> *…most of the decisions have already been taken, for example dosing* (Community Pharmacist, P3)

Nevertheless, community pharmacists identified they had an important role acting as a go-between for the patient or the patient's representative and the GP practice in sorting out prescription issues. Some community pharmacists who had experience of working in GP practices had gained an understanding

of how practices worked. *'I think the GP practice has given me a greater understanding of what goes on in a GPs day to day life, and how many queries they do get'*. This then reflected in their behaviour for instance when contacting the practice from the community pharmacy ensuring practice staff were aware they had a palliative query so this could be prioritised.

There was also consideration of extending the pharmacists' role in palliative care but there were barriers to be overcome:

> *In terms of what we could do, it's all about our ability to be able to fit those things in…you could change the whole system if it wasn't for the classification of the drugs… we're really restricted in terms of time that we have to do anything else in community pharmacy and do anything outside of the four walls of the community pharmacy and the legal framework that defeats our ability to change from what's on the prescription* (Community Pharmacist, P4)

There was the opinion that community pharmacists could have more of a role in palliative care.

> *I don't think there is a consistency of involvement of community pharmacy with patients* [in palliative care]*, it definitely feels like something that could make a difference if it could be formalised more and proved…* (Community Healthcare Professional, cHCP9)

Nurses knew little about the community pharmacists' role beyond dispensing.

> *…nurses just see pharmacists as people who dispense drugs they don't see pharmacists as the person who can actually make suggestions of drugs…* (Community Healthcare Professional, cHCP4)

> *It's probably a case of not having knowledge of what else you –* [pharmacists] *do apart from dispensing medications we need for*

the patient if there is any other service they provide I'm not aware of that [laughs] (Community Healthcare Professional, cHCP6)

Interestingly, although a nurse might consult a pharmacist for their own treatment, within palliative care they would always go to the GP.

You know for myself, going off subject, a lot of the time I go straight to the pharmacist rather than the GP first. I don't know why I don't in this instance [both laugh] (Community Healthcare Professional, cHCP8)

Many healthcare professionals had a distinct lack of knowledge of community pharmacy services both nationally contracted and locally commissioned services as well as services provided by the local pharmacies themselves, which had an impact on how they viewed and utilised community pharmacists. For instance, healthcare professionals did not understand the term and conditions around delivery of medicines relying on local knowledge about where to go to access palliative care medicines.

GPs were aware of some of the nationally contracted services such as MURs but noted they had not experienced these services being provided to palliative patients.

Generally, the [community] *pharmacists do medication reviews for us occasionally but that doesn't tend to be the case with palliative patients. For instance, with other patients they would check if all the medications were needed…but I don't think that tends to happen with palliative as much* (GP, HCP3)

b) Confidence and experience

Pharmacists' confidence and experience in palliative care was mostly obtained after registration and relied on the pharmacist's own motivation.

> *…I've done the CPPE* [training] *pack…I think I had just qualified, because they scared me a bit palliative care scripts* (Community Pharmacist, P2)

> *…depending on your training and experience, there is definitely psychological support you can give…depending what you specialise in…talking to someone going through this stage in their life…there is the pharmaceutical side…being proactive rather than trying to be reactive does play a big role…* (Community Pharmacist, P3)

Other healthcare professionals contrasted their own experience of seeing dying patients and feeling responsible for their care:

> *I think it's a question of people* [pharmacists] *feeling responsible or competent so just you go into a local pharmacy and the pharmacist in there is not going to feel they are responsible for all the palliative patients on their patch or they may not feel they have the specialist skillset* (Community Healthcare Professional, cHCP9)

> *…if you've not seen lots of patients close up and you've not got much clinical experience of seeing patients with symptoms with a palliative nature everyday then I suppose it's a training/ experience barrier* (GP, HCP10)

5.6.2.2.2 Community Pharmacist relationships with other healthcare professionals

Communication between community pharmacists and GPs varied from close working relationships within co-located facilities, to good relationships in small neighbourhoods, to more professional relationships across several practices.

> *…I'm not sure if we've got an exceptionally good relationship with ours* [pharmacist] *or not but I would have thought most GPs do* (GP, HCP3)

> *…my relationship with the GPs is not as solid as it was with the previous surgery…you've got loads more GPs in your radar, so it makes it difficult* (Community Pharmacist, P3)

Pharmacists in pharmacies that were not co-located with a GP practice tended to talk directly to GPs less often and conversations were more likely to be initiated by the GP on the telephone than co-located pharmacies who initiated more face to face conversations with GPs.

> *…there was an on-site pharmacy…I could go to them with questions because they were literally in the same building* (GP, HCP2)

Relationships between GPs and pharmacists were positive both ways with GPs stating they found pharmacists to be very accommodating. GPs did not mind pharmacists querying things though this was seen as giving reassurance to the pharmacist for example, when a potential drug interaction is flagged up on the pharmacy computer system.

> *They're very good the local pharmacists and I never mind them querying things…they're never wasting my time…they do occasionally pick errors up. I mean most of the time it's just reassurance…but it's an extra safety net for us* (GP, HCP3)

Relationships between pharmacists and other healthcare professionals tended to be very limited or non-existent.

> *…I don't really have a great deal to do with the pharmacy. I can't tell you the last time I ever spoke to a pharmacist about any prescribing or any drugs for palliatives* (Community Healthcare Professional, cHCP5)

> *…we have district nurses…across the way from the pharmacy…we don't necessarily have those relationships with the nurses…we don't have that close collaboration with the District Nurses* (Community Pharmacist, P4)

Where cooperative relationships between GPs and pharmacists existed this resulted in a positive patient experience where GPs communicated intentions to prescribe palliative medicines in advance with the pharmacist.

> *So, the surgery down the road...one GP…rang us and said well what have you got in stock and what can you get, which I found really, really useful because as the prescription came in the stock came in and this thing was completely seamless* (Community Pharmacist, P3)

Nurses also held the view that closer integration with pharmacists would help patients though this appeared to be difficult to enact on the ground. Nursing staff favoured more personal relationships needing to meet someone face to face and they worked well with pharmacists who were 'part of the team' where they had built trusting relationships.

> *When we were down at* [previous community nurse location] *…there was a pharmacy next door so…if we had any quick questions, we would go and talk to them…they were more like part of the team* (Community Healthcare Professional, cHCP7)

> *…so sometimes by sharing knowledge with pharmacists I think we could get better results for patients* (Community Healthcare Professional, cHCP4)

Trust was an important part of developing personal relationships and was regarded as necessary when dealing with palliative care whether they were professionals or patients and their family caregivers.

…I knew the GP and I had an existing relationship with them and I knew they would fulfil their end of the agreement (Community Pharmacist, P1)

…you're just someone to speak to. Quite often they've [the patient's family] *been to see the doctor, they've been to see a few and it's almost just like they want to see what you have to say about this and it's just supporting them in the best way you can and signposting them where appropriate* (Community Pharmacist, P2)

5.6.2.2.3 Communication within and across teams and care settings

Under the category of communication there were two sub-categories: decentralisation and isolation of teams and information sharing including access to records.

a) Decentralisation/Isolation

Community healthcare professionals said that decentralisation of community nursing teams to locations away from GP practice and community pharmacy hubs had made it more difficult to pop into a pharmacy unless passing or collecting medicines and nurses only tended to call pharmacists on the telephone to source urgent medication.

When we were down at [previous community nurse location] *…there was a pharmacy next door so…if we had any quick questions, we would go and talk to them…they were more like part of the team* (Community Healthcare Professional, cHCP7)

…they'll phone up and say…have you got the following stock because I'm going to ask for a prescription from the doctor (Community Pharmacist, P5)

> *…I do contact them* [pharmacies] *and say, 'have you got this in stock' 'yes I do' 'well expect a prescription and can you get it ready for a family to collect in an hour'…they will always try to accommodate I think because they know it's a necessity…* (Community Healthcare Professional, cHCP6)

Likewise, pharmacists did not feel that they worked closely or collaboratively with nursing teams. There also appeared to be limited contact with specialist palliative care in all except one pharmacy.

> *…no, I've never had any interaction with them* [specialist palliative care team] *at all* (Community Pharmacist, P4)

Community pharmacists were often viewed by other healthcare professionals as being detached and working in isolation, however, they also found pharmacists to be accommodating and professional in trying to resolve any issues especially in the context of end of life.

> *…community pharmacy are* [sic] *a bit detached sometimes* (Community Healthcare Professional, cHCP1)

> *…pharmacists are behind a counter…they don't tend to go out into patients' houses…* (Community Healthcare Professional, cHCP4)

Community pharmacists felt isolated from other members of the primary care team due to the necessity to remain in the pharmacy arising from the responsible pharmacist regulations. This was compounded by the geography of primary care, the city itself and the many GPs who the pharmacist could potentially encounter.

> *…we're really restricted in terms of the time that we have to do anything else in community pharmacy and do anything outside of the four walls of the community pharmacy…* (Community Pharmacist, P4)

> *…the logistics of community and primary care don't support that* [multidisciplinary working] *as well with regards to the geographical locations of these people and with things like responsible pharmacist regulations…* (Community Pharmacist, P1)

> *My relationship with the GPs is not as solid as it was with my previous surgery… you've got loads more GP surgeries in your radar, so it makes it difficult…* (Community Pharmacist, P3)

This was exacerbated further by a lack of involvement in GP practice clinical meetings. One GP had not considered the involvement of community pharmacists in their palliative care team meetings and expressed practical considerations that would probably make it difficult for a pharmacist to attend.

> (GP, HCP3) *…they don't for instance come to our palliative MDT meetings.*
>
> (Researcher) ***Would they be invited?***
>
> (GP, HCP3) *No.*
>
> (Researcher) **No.**
>
> (GP, HCP3) *No, I've never really thought* about *it. It's hard enough getting everybody together anyway without additional people…*

One pharmacist suggested the use of new technology to facilitate their involvement in meetings.

> *…it would be great if there was some way, perhaps using modern technology facilitating the involvement of a pharmacist in these sort of* [practice clinical] *meetings* (Community Pharmacist, P1)

b) Information sharing and access to records

There was caution in communicating information with pharmacists hindered by participants' views on confidentiality and information sharing with pharmacists and pharmacy teams. Dispensers and other staff in the pharmacy often lived in the area and it was felt inappropriate that information on palliative patients and their families could be shared with these staff.

> *I do have some slight reservations about them* [pharmacists] *knowing all those ins and outs…I'm not sure how wide that circle is in there* [pharmacy]*…I'd prefer it …on just a case by case basis…to an identified clinician…* (General Practitioner, HCP10)

> *…but you're limited by what you can tell them* [pharmacists] *obviously from a confidentiality point of view…* (Community Healthcare Professional, cHCP11)

Healthcare professionals did not see the need to share information with community pharmacists'; they did not see what information would be of use to pharmacists. They also did not see a reason to inform the pharmacist that the patient is palliative instead they would rather let them work this out intuitively from the prescription.

> (Researcher) ***Is there any information that you or your team could share with pharmacists to improve the care of palliative care patients?***
>
> (Community Healthcare Professional, cHCP6) *I can't think of anything, no.*
>
> *…we don't communicate with them* [community pharmacist] *what the problem with the patient is we just prescribe the drugs… sometimes they can obviously work it out…* (GP, HCP3)

In some cases where the researcher prompted the question some healthcare professionals considered it may be helpful for the community pharmacist to have this knowledge if it supported patient care.

> *…it's an interesting point that's only just occurred to me as we mentioned it…I think maybe it would be useful for them to know* [the patient is palliative]. *I mean they get to know if we ring up to check if drugs are available* (GP, HCP3)

> *Maybe we should have better meetings say like* [if] *a palliative* [patient] *did come on* [the nurse's caseload] *would it be a good idea to inform them* [community pharmacist] *that they are on* [the nurses caseload] *and that there may be issues that we need to address and keep in close contact. Other than that I can't really see any call for it* [sharing information with the community pharmacist] (Community Healthcare Professional, cHCP5)

> (Researcher) ***What kind of information do you think you or your team could share with community pharmacists to improve the care of palliative care patients? If anything?***

> (Community Healthcare Professional, cHCP7) *Well obviously from my lack of communication and usage maybe more integration with them*

> (Researcher) ***In what way do you think that might help palliative care patients?***

> (Community Healthcare Professional, cHCP7) *Just maybe they're getting the right drug at the right time for the right length of time and it gets changed more appropriately, the dose is more appropriate.*

Some pharmacists stated that access to patient clinical records on SCR, though this had not often been used in palliative care, had helped resolve queries with prescriptions and managing conditions in the pharmacy. There was concern due to frequent medication changes and multiplicity of prescribing in palliative care that SCR may not be complete or up to date yet there was general agreement that having access to information meant that the pharmacist was better able to help the patient.

> *I use Summary Care Records…*[if]*… the CD dose changes particularly the opioids I've used SCR to check if have they had this before or have they had a lesser strength before…some of them can be scarily high so you'd hope to see something on this* [SCR] (Community Pharmacist, P2)

> *…having more access to that* [referral letters on SCR] *will help speed things up particularly out-of-hours…I think palliative care would be an area that* [SCR] *has one of the biggest effects on…the more information we can get as community pharmacists the better able we are to deal with it and help the patient.* (Community Pharmacist, P2)

Even though it was considered that access to electronic patient records might help community pharmacists in their role there was still some concerns about sharing this information with them.

> *…that would definitely help* [having access to electronic records] *… we share this information with the out-of-hours teams so actually having the chemist formally aware rather than just picking up because they have received a prescription for diamorphine…* [however] *I've not become aware of where it's been a problem…I've never heard a chemist saying well I'm sorry I wasn't willing to issue this… because I was not aware they were palliative.* (GP, HCP10)

5.6.2.2.4 Integrated/Collaborative Working

There was some evidence where there was high quality communication between the professionals looking after palliative care patients and the pharmacy team there was higher co-ordination of care.

> *…the doctors would be there writing the scripts, the nurses would be there…we would work very closely and collaboratively* (Community Pharmacist, P4)

> … [the District Nurses] *…they would come in and ask for advice…and say what have you got in, what can I prescribe* (Community Pharmacist, P3)

> *I'm very open to suggestions and conversations, and they* [District Nurses] *appreciate that and I encourage them to keep in touch…new nurses are given this list* [of palliative care medications] *and I say look this is what I do…if you want me to modify that* [list] *do tell me…the greater the level of dialogue, not just the quantity but* [with] *the different professionals involved, you do liaise better if you talk to each other a bit more often which kind of seems obvious but there's nothing worse than hitting a snag which could have been* resolved…(Community Pharmacist, P5)

Ongoing discussions between a pharmacy and the palliative care team to allow access to more specialist drugs were being considered on an informal basis '*…one of the pharmacists did stop me and asked…if we drew up a list of drugs we would like them to have, then they would be happy to stock those for us…'*

5.6.2.3 Skills and Knowledge

Categories included pharmacists' knowledge, skills and experience and community pharmacy team knowledge, skills and experience.

5.6.2.3.1 Pharmacist's knowledge, skills and experience

Community pharmacists acknowledged that palliative prescriptions can be difficult and can take a little more concentration.

> *…you have really got to concentrate and make sure you're… checking them right…they're difficult* (Community Pharmacist, P2)

It was clear from the healthcare professionals that some of the pharmacists they encountered were not familiar with pre-emptive prescribing or understood the urgency of needing the drugs near the end of life.

> *I got the impression* [the pharmacist had] *probably never done pre-emptives before because she rang me, she wasn't happy for the family to take them because she wanted to be clear that they weren't going to be giving them and if she needed to give the family any counselling about how to use them and I was…that's not the point of pre-emptives the family don't use them at all so you're fine to give it to them and they haven't got anything in the house that they could use them for so they couldn't draw them up* (Community Healthcare Professional, cHCP11)

> *…community pharmacy don't* [sic] *really understand how urgent these kinds of things are…* (Community Healthcare Professional, cHCP1)

An example of the unfamiliarity meant that a patient was turned away when they presented a controlled drug prescription from a non-medical prescriber. *'not that long ago, a patient took one of my prescriptions* in [to the pharmacy] and *because it had a controlled drug on* [the prescription] *the pharmacist refused to do it and sent them* [the patient] *away* [be]*cause it was a purple form'.*

There may have also been unfamiliarity around the term ‘palliative’ with pharmacists focusing on those people in the terminal phase though it was defined for the interview as anyone in the last year of life.

> *It’s been the experiences of people bringing in prescriptions for…all sorts of medication that might go in a syringe driver or…that’s administered by injection for end of life care* (Community Pharmacist, P1)

Another example was concerning a ‘living with and beyond’ cancer scheme developed in partnership with Macmillan, a national cancer charity, available in Sheffield community pharmacies. People who had been referred to the pharmacy for symptomatic treatments relating to their cancer treatment were considered ‘pre-palliative’.

> *…it’s probably not at the palliative stage, it tends to be dealing more with the effects of* [cancer treatment] *…if say they’ve got a dry mouth…we can help make that easier for them…* (Community Pharmacist, P2)

Training in palliative care had been completed by four of the five community pharmacists. The training was provided by CPPE, a nationally accredited pharmacy training provider, encouraged within professional development networks and by the CCG commissioned service for providing palliative care medicines (although some of the pharmacists not commissioned to provide the service had also completed it). Some community pharmacists had also completed a Postgraduate Clinical Diploma, which included a module on pain control. Training was knowledge based with pharmacists identifying a lack of experience and skills in more specific areas of palliative care.

> *Syringe drivers…I don’t know a great deal about them practically…I know the doses…but I’ve never actually seen a syringe driver in use or come across one* (Community Pharmacist, P2)

One of the pharmacists had completed the advanced practitioner framework for a company chemist in liaison with a cancer charity, which had given specific skills in supporting patients with cancer. '*You get an insight into what people's lives are like when they have cancer…you get a sense of what the families go through, the dynamics changing*'.

Pharmacists acknowledged their lack of experience in palliative care that meant that besides screening prescriptions for error they did not consider their role extended to questioning other healthcare professional's choice of treatment. Pharmacists thought it would be difficult to use a supplementary or independent prescribing qualification in this area of practice.

> *…beyond screening their prescriptions and their choices of treatment for error I don't think I shall be telling patients what I have unless I did that as a supplementary prescribing role in palliative care, that's a possibility but not in general practice community pharmacy. I don't see enough of it to become good at it, not at that level of detail* (Community Pharmacist, P5)

This sentiment was shared by some healthcare professionals who understood the generalist nature of community pharmacy and the need for a specialist skillset in looking after palliative care patients. *'…a pharmacist working with general practice is more of a generalist role…but there comes a point where it becomes more specialist palliative care…and it's above and beyond the generalist issues'*

Specific difficulties for locum and relief pharmacists existed since they may not know what palliative care medications are in stock, may have difficulty engaging in local education and lack knowledge of locally commissioned services meaning they may not be able to provide the same level of service compared to a regular pharmacist. Locum or relief pharmacists would be unlikely to take a risk in dispensing an illegal prescription that was required urgently if this meant leaving an unresolved query for the pharmacy team and pharmacist to pick up the next day. *'not only are they* [the locum] *entrusting their place on the register and their place out of prison, potentially anyway, to*

a GP…they don't know…but it is about the trust they have put in the…pharmacy team and the trust they put in the pharmacist that they may have never met'. Unlike pharmacy managers and regular pharmacists, locum pharmacists may not have the same support networks or relationships with an Area Manager or Superintendent Pharmacist to enable them to discuss any difficult ethical issues or to summon a second opinion.

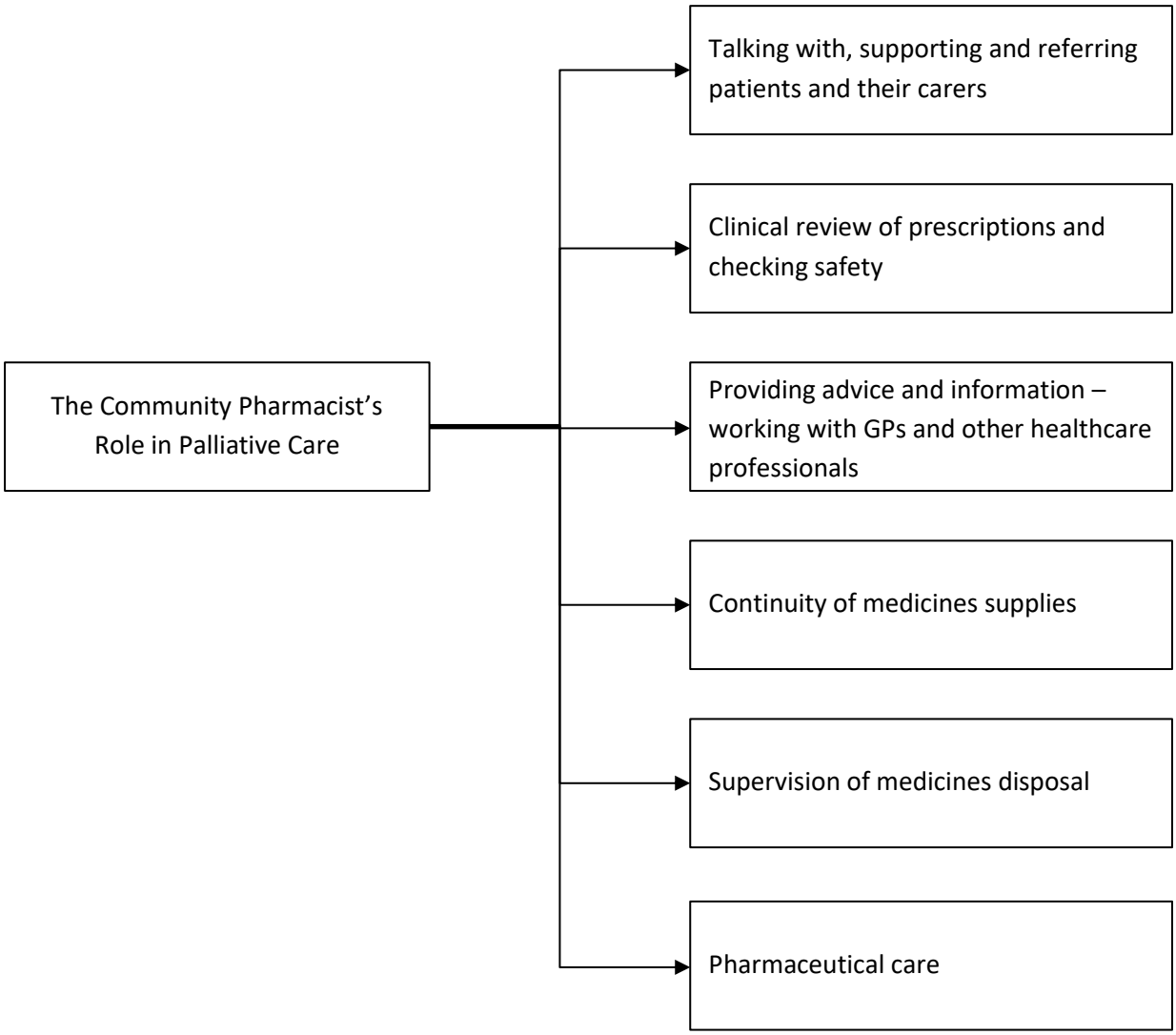
5.6.2.3.2 Community pharmacy team knowledge, skills and experience

Having skilled and competent pharmacy support staff was crucial in releasing the pharmacist to take on additional roles in the pharmacy. Within the context of palliative care, skilled support staff could resolve many prescription queries before they reached the pharmacist. This was not a common scenario with most palliative prescriptions passing directly to the pharmacist in the majority of pharmacies. *'Where I worked before the pharmacist would tend to deal with all of palliative care…whereas here we've got a number of technicians who know all about it and are more than capable.'*

In the next section, findings related to the theme of the pharmacists' role in palliative care according to figure 5.5 are discussed in more detail.

5.6.3 The Community Pharmacist's role in palliative care

Figure 5.5: Tree diagram of thematic framework for pharmacist's role



5.6.3.1 Talking with, supporting and referring patients and their carers

Pharmacists showed they were highly concerned and paid attention to the customer's needs whether it was the patient, their family caregivers or other relatives. This was demonstrated through their professional responsibility, being accommodating, helpful and having consideration for others.

> *…if you recognise…what these prescriptions are for you accept…when you speak to people they will be upset… we will take some responsibility for that prescription…explain to them what we've got to do and why… you approach it sensitively then you can normally come up with an acceptable resolution for them* (Community Pharmacist, P2)

In contrast, there were also experiences where it was felt by other healthcare professionals that the pharmacist was not helpful for instance where people were turned away from a pharmacy and told to go elsewhere when they required urgent medications for someone near the end of life and were not given any direction of where to go or when a prescription did not fulfil legal requirements leaving the pharmacist in a difficult position.

> *…one bloke got into a bit of a fight with the pharmacist because he was so anxious about getting the medication back in time for the syringe driver and the pharmacist wouldn't give him the medication because he* [the pharmacist] *didn't know what dose* (Community Healthcare Professional, cHCP11)

Pharmacists stated that pharmacies were busy places but they all had private consultation areas that could be used to sit with patients and talk about their medication. Time constraints meant it was not always possible to sit in a consultation room but it helped to ask patients how they were getting on with their medications when issuing them as people tended to talk about things that they were not so sure about, which would indicate if they had any difficulties. Pharmacists also emphasised their role in explaining medicines to

patients and their family caregivers, telling them what the medication is for, checking their understanding and advising on safe storage.

> *…pharmacies are really, really busy…it depends on the patient; if they've got time to sit down and have a chat that's fine, it also helps when you hand out the prescription…you can ask 'do you have any problems with these, or is there anything you'd like to know about these'…yes I am comfortable to be able to sit down with the patient and go through the use of a patch for example*
> (Community Pharmacist, P3)

There could be difficulty in pharmacists achieving the above since palliative patients may be unable to visit the pharmacy needing or opting to have their medicines delivered instead.

> *…if patients are being delivered to then…they* [only] *ever come into contact with the* [delivery] *driver and the pharmacist doesn't know whether the patients are getting on alright with their med*[icine]*s* [be]*cause they never really speak to them*
> (Community Healthcare Professional, cHCP1)

This appeared to be a gap in service provision as noted by other healthcare professionals.

> *…sometimes you go into people's houses and they've got a whole sideboard full of medicines and they don't really know what they are taking and actually getting that sorted out is sometimes incredibly difficult because it's whose responsibility is it…*
> (Community Healthcare Professional, cHCP9)

Having had conversations with people diagnosed with cancer or those on a 'living with and beyond cancer' local scheme enabled pharmacists to support and signpost people. Often those patients talking with the pharmacist would say that their specialist had mentioned this but they had forgotten the details discussed at the consultation due to the shock of the diagnosis or results

given. Pharmacists said that sometimes patients just wanted a second opinion or wanted reassurance and were just trying to sort things out in their head.

> *…depending upon your training and experience, there is definitely psychological support you can give…being able to signpost and just putting people in touch with people so they get the proper support they need* (Community Pharmacist, P3)

> *…you get a few upset patients and sometimes they just want to tell you about it… Quite often they've been to see the doctor, they've been to see a few and it's almost just like they want to see what you have to say…it's just supporting them in the best way you can and signposting them where appropriate* (Community Pharmacist, P2)

Another aspect was supporting the general public for example a bereaved neighbour or those who were self-medicating who were putting off going to the doctor.

All the pharmacists were versed in making referrals to other pharmacies to source palliative care medications at the end of life including to a competitor pharmacy, putting the patients need for timely symptom management above commercial interests.

In the context of palliative care, the community pharmacist's default referral was to the GP. This was also the pathway used by community nurses whenever they had any query or concern about a patient or their medication.

5.6.3.2 Clinical review of prescription and checking safety

The checking of safe and appropriate doses was a consistent theme across pharmacists, GPs and other healthcare professionals who identified the pharmacists' role in patient safety especially in dispensing what are potentially dangerous drugs and interactions with other medication.

> *…I think the safety net of double checking regarding interactions and dosages is very important* (General Practitioner, HCP3)

> *…a good pharmacist becomes that safety net…I think GPs do a fantastic job but they don't understand drugs the same way that pharmacists do …pharmacists are much better at picking up the subtle differences between different drugs and the subtle interactions…that sometimes GPs don't see…* (Community Healthcare Professional, cHCP7)

This recognises the specific skills and knowledge of pharmacists beyond just merely supplying the drugs. It was acknowledged that although the pharmacist screens the prescription to ensure it is appropriate for the patient they may not actually have a specific dose on the prescription for instance if the medication is to be used in a syringe driver and is prescribed 'one as directed'. Nevertheless the pharmacists could pick up prescribing errors such as strange doses or volume errors.

> *It is not uncommon to have doctors putting milligrams when they meant mls…when you phone up and say 'that's a rather strange dose do you mean?' 'Yes I do'...you're building these safe practices…not* [to] *assume that the doctors got it right, they probably have…but they definitely appreciate the second pair of eyes looking at it.* (Community Pharmacist, P5)

From the pharmacists' point of view, they were involved in ensuring safe and appropriate opioid conversions and screening choices of treatment for error in addition to ensuring the prescription was safe and complies with legal requirements.

> *What we would do is look at the* [opioid] *conversion charts with the patient, ask the patient what they've been on and doing the conversion and then feeding this back to the GP surgery* (Community Pharmacist, P3)

There was a situation a couple of years back when…a doctor made a mistake and tried to increase their [patient's] *morphine equivalent dose to something equivalent to 100 fold…So pharmacists we know we are good at calculations we're good at doing* [opioid] *conversions and making sure that, not only …people aren't scaled up too much but also making sure that…prescribers aren't being too cautious to a degree* (Community Pharmacist, P1)

GPs and one other doctor identified that the pharmacist may be able to advise on mixing drugs in a syringe driver but it was also noted that the pharmacists are not always given the syringe driver chart and would not be aware of what was being mixed together from an FP10 prescription form.

No, they don't get the pink card [syringe driver record] …*they simply get the prescription* (GP, HCP3)

…I might only need say, extra diamorphine, so that script might only say diamorphine whereas I might be using midazolam and haloperidol which were prescribed previously but I've still got a supply of those, so they don't always know what's in the [syringe] *driver* (Community Healthcare Professional, cHCP4)

5.6.3.3 Providing advice and information - working with GPs and other healthcare professionals

GPs noted that there was excellent communication between GPs and pharmacists and all healthcare professionals identified the need for more communication around medications especially those dispensed in Monitored Dosage Systems.

One of the biggest problems…is Nomads because drugs are changing all the time and once you go to palliative mode Nomads can be a real nuisance and sending Nomads backwards and forwards and giving drugs outside of the Nomad on a prn [as

required] *basis can be quite challenging…so they're* [pharmacists] *…helpful with that. So, we do discuss Nomads a lot* (GP, HCP3)

GPs would seek advice from the pharmacist but this would usually be specific for example stock availability or choice of formulation for someone with swallowing difficulties. Pharmacists described an increased involvement with medical trainees and training practices.

> *I worked at a GP practice* [as]*…a trainee and there was an on-site pharmacy…so I could go to them with questions because they were literally in the same building* (GP, HCP2)

> *I actually get more questions from the F2s than the majors…we had a patient prescribed…co-danthramer and one of the F2s was unsure of whether* [they] *could use it…so* [they] *came and spoke to us in the pharmacy…they want advice rather* [than] *just an exchange in information* (Community Pharmacist, P4)

Local collaboration was evident where pharmacists had worked with local GP practices on stocking a list of palliative care medicines, though this discussion was usually initiated by the GP. Furthermore, pharmacists co-located with GP practices had more opportunities for joint working and described a range of 'spin offs' that helped foster closer relationships between professional groups.

> *'I get these doctors, the F2 level and when they start at the practice I'll spend an hour with them, they'll get sent next door into the pharmacy…and I'll say to them if you know what you want medicine wise but the patient's not going to take it phone me and I'll tell you alternative drugs or alternative brands or formulations…'* (Community Pharmacist, P5)

'…when trainee nurses and trainee healthcare assistants join at the medical centre, they usually get sent to me [pharmacist] *for an afternoon…'* (Community Pharmacist, P5)

'…we have an open door…so, if I have an issue or they have an issue, they'll [GPs] *come into the pharmacy, I'll go to their rooms…I also have SystmOne access within the surgery…so anything that they want to know they can ask'* (Community Pharmacist, P4)

Other community healthcare professionals described instances where community pharmacists' advice could be helpful for patient care but tended to not utilise community pharmacists.

I don't think we utilise community pharmacy as much as we could do (Community Healthcare Professional, cHCP1)

I think that I underuse…the skills of the community pharmacist…we tend to go with the GP (Community Healthcare Professional, cHCP7)

5.6.3.4 Continuity of medicines supplies

Community pharmacists in their supervisory role in the pharmacy ensured continuity of medicines supplies for patients and often had an eye on what was going out and what was needed. Pharmacists could refer patients on to obtain medicines when necessary.

…sometimes…specials can cause a problem…I phoned the hospital and they explained where the stock [of the special] *was …I called* [the patient] and said [name of hospital] *will arrange a prescription for you to collect…* (Community Pharmacist, P5)

The pharmacist picked that up and…said you know we'll make sure we've always got some [name of medicine] …*in now while* [the patient's] *on it* (Community Healthcare Professional, cHCP9)

There could be a sense of ‘failure’ within the team where supplies of the requested medication could not be made.

> *I think not being able to supply the medicine would be an issue because I think most of my team, the dispensers take pride in their work and if they can’t supply they would feel a little bit let down…*(Community Pharmacist, P3)

> *…when the prescriptions arrived in the pharmacy there wasn’t enough time to order any if you didn’t have them* [medications] (Community Pharmacist, P5)

5.6.3.5 Supervision of medicines disposal and pharmacy processes

When prompted by the interviewer pharmacists and other healthcare professionals confirmed the pharmacies role in the safe disposal of unwanted and out of date medicines including the safe disposal of opioids after bereavement. This point was not referred to spontaneously by interviewees without prompting though is a core service by all pharmacies. The pharmacists identified their role in supervising this process and the need for pharmacy staff to show empathy to bereaved relatives.

> *…you can either see they’re upset…they don’t want to drag it out, they just want to give you these medicines and go…we get quite a lot of medicines back, we’re used to dealing with that* (Community Pharmacist, P2)

> *…* [pharmacy] *staff deal with it very well in terms of legal needs, to establish what’s in the bag…and being sympathetic to that patient’s carer’s/relatives situation* (Community Pharmacist, P4)

Though pharmacists were used to dealing with disposing of medicines there was an underlying current of inconvenience, this was noticeable when large

quantities were returned or if the drugs were returned to a place different to the issuing pharmacy.

> *…we really don't like that* [disposing of medicines] *but it has to be done…everywhere I've ever worked…it never seems to be the medicine that you've dispensed that people bring back in, it's always well 'why don't you use your own pharmacy', you'd never say that…but we're all thinking it I guess* (Community Pharmacist, P1)

5.6.3.6 Pharmaceutical Care

Pharmaceutical care aims to optimise drug therapy and minimise risks to the patient utilising the pharmacist's knowledge and skills (RPS, 2016) and within this context applies to evidence of any pharmacist led clinical activity beyond the essential nationally contracted pharmacy services.

Community pharmacists who had completed postgraduate pain modules tended to consider their role included pain control and managing other symptoms; '[I'd be] *optimising their pain relief and any other symptoms they've got'.* In contrast, some community healthcare professionals and GPs suggested that symptom control was not the pharmacist's role.

> *…I don't see that as their* [pharmacist's] *particular role…I'm not sure I would expect a community pharmacist to start getting into symptom analysis and diagnosis and suggesting treatments myself* (GP, HCP10)

> *I do… speak to…. pharmacists…if we are trying to source* [medications] *…but not so much about symptoms…* (Community Healthcare Professional, cHCP11)

Though nurses didn't speak to pharmacists about symptoms one nurse did acknowledge that pharmacists could support nurses in this area.

I think we could be more open about patients and their symptoms and symptom management…by sharing knowledge with pharmacists I think we could get better results for patients (Community Healthcare Professional, cHCP4)

There was recognition of the pharmacist's role in supporting patient concordance in medication taking through their unique relationships with patients and carers and through providing information or rationalising therapy.

…the reason why people don't take their medicines…is because there [are] *lots of unresolved issues that weren't addressed in a consultation and if it's not addressed by the doctor then the last line before…the patient is the pharmacist…* (Community Healthcare Professional, cHCP1)

Sometimes carers find themselves out of their depth with medication and possibly the GP doesn't recognise that whereas the pharmacist might (GP, HCP3)

'…a community pharmacist could really help with that medicines reconciliation and rationalisation of medicines and looking at: they are taking these three things how much of their side effects is from those…I think we could work with community pharmacy more on that than we do' (Community Healthcare Professional, cHCP9)

Little mention was made of the nationally contracted services such as MURs being used in palliative care; mainly because patients had to be present and provide consent for it to be considered an MUR.

…*we don't seem to have medicines usage reviews…they don't seem to happen* [in palliative care patients] (GP, HCP10)

> *…if you're going to do an MUR for a patient, they've got to be there, they've got to consent to it, you've got to explain it to them and that obviously can't happen with a carer. We do what would probably be an MUR for a patient…external to that patient for no remuneration because that's the right thing to do…* (Community Pharmacist, P4)

Pharmacists considered their role included educating patients and carers, which would be done on a more ad-hoc basis.

> *…whether you do a medicines use review or not I think it's good practice just to try and engage patients…just ask them 'how are you getting on with your medicines… any headaches, dizzy spells, stomach ache?'…with time constraints you might have to let it go…hoping that you'll catch them eventually* (Community Pharmacist, P5)

There was discussion by the community pharmacists taking part in a local *Living with and Beyond Cancer Programme* that they could advise and support patients going through cancer treatment on symptoms such as dry mouth or eyes.

> *You get a lot of people who need some simple advice; if…they've got a dry mouth…we can make that easier for them…*
> (Community Pharmacist, P2)

> *…they might have dry eye syndrome off chemo*[therapy] *or…they might be overdoing it with the hypromellose and getting sore eyes because there's too much preservative …they quite often appreciate the conversation, the fact that you're interested…*
> (Community Pharmacist, P5)

Although community pharmacists described *'providing pharmaceutical care'* to palliative care patients they also had the opinion that treatment decisions

had already been made so it would be difficult to have any extended role or influence in this area.

> *…most of the decisions have already been taken, for example dosing…. and obviously MURs aren't very clinical…so it's about the decision that has already been made…the MUR could possibly help discussing the medication…but…if it's palliative care, you might not always see the patient…we can do house visits…but arranging something like that takes quite a while to do* (Community Pharmacist, P3)

In the next chapter, the results and findings from each phase of the study are brought together and discussed in the context of relevant literature making recommendations on improving the pharmaceutical care of palliative care patients and processes for obtaining urgent palliative care medication.

Chapter 6: Discussion

In this chapter, findings from the quantitative and qualitative phases are discussed and evaluated in relation to the research objectives to assess whether these were met. Further to this, the findings are compared and contrasted with other available research to assess the outcomes. After the objectives from each phase are appraised, the collated results are integrated and discussed in the context of other published literature and the purpose of the study (Creswell and Plano Clark 2011). Finally, the strengths and limitations of the research will be evaluated.

6.1 Recap of Research Aims

The aim of the research was to explore timely access to palliative care medications in the community and the community pharmacist's role in palliative care. This aim was achieved through utilising a sequential mixed methods approach with a quantitative phase followed by a qualitative phase. In the initial quantitative phase, sequential palliative care prescriptions were examined from five participating community pharmacies in Sheffield; two of which take part in a local commissioned service providing access to palliative care medicines, and three comparators not in the commissioned service. The purpose of this phase was to explore factors leading to a delay in accessing palliative care medicines in the community pharmacy setting and the time taken for accessing urgent palliative care medications. In the second, qualitative phase the researcher conducted semi-structured interviews with sixteen healthcare professionals including community pharmacists (n=5) who had participated in the quantitative phase, GPs (n=3), community nurses (n=5), members of the specialist palliative care team (n=2), and a member of the intermediate care team (n=1). The interviews explored the participants' views, perspectives and experiences in accessing timely palliative care medication and the community pharmacist's role in palliative care.

6.2 Findings from Phase 1: Data Collection in Community Pharmacies

This section considers the findings from the data collected from the five participating pharmacies within the parameters of the study objectives. Findings will be discussed in the context of other published and unpublished data.

6.2.1 The prevalence and nature of prescribing errors

The objective was to investigate the prevalence of prescribing errors on palliative care prescriptions and explore whether the error rate varied according to practice, prescriber status or the nature of the prescription. The results of this study demonstrated that legal prescription errors, which did not meet the statutory CD prescription requirements, occurred in 1.1% of the sample of palliative care prescriptions. In all three cases of legal error, the prescription did not specify a dose on a subcutaneously administered controlled drug given via a syringe driver. Non-legal errors including clinical and administrative errors occurred in 3% of the sample. There was insufficient data owing to the low level of prescription errors to ascertain whether errors varied due to the prescriber or nature of the prescription. No handwritten prescriptions contained errors and there were no EPS delivered or NMP prescriptions in the sample. All legal errors occurred on prescriptions from NHS GPs on computer-generated prescriptions; there was no pattern to clinical and administrative errors; which occurred on handwritten and computer-generated prescription forms, NHS GPs and OOH providers.

In this current study, there was a lower level of incorrectly written prescriptions and legal errors compared to previously reported unpublished studies. In an unpublished audit of 850 CD prescriptions from 61 pharmacies in Scotland by Stuart (2013), an error rate of 12.5% was reported; 10.7% of which were legal errors and 1.8% being clinical errors. A further unpublished audit in Scotland by the NHSGGC Controlled Drugs Governance Team in

2009, reported in Stuart (2013), found an error rate of 7.6% for 991 CD prescription items from 50 pharmacies; however, the authors did not specify whether these were legal or clinical errors or both. MacRobbie et al. (2015) reported a legal error rate of 3.7% in an audit of 695 CD prescription items from three pharmacies and four dispensing GP practices though it was noted there was a high prevalence of errors on handwritten prescription forms as hospital doctors did not have cause to write these very often. In a study by Lucey et al. (2008), community pharmacists reported that 31.5% of delays in supplying palliative care medications in the community were due to incorrectly written prescriptions but the study did not record actual prescription data or specify whether incorrectly written prescriptions contained legal or other errors. In the PRACtICe study (Avery et al., 2012), it was reported that there were eight legal problems within 6,048 prescriptions during a retrospective review of GP clinical prescribing systems but it is not possible to ascertain if this data is comparable as there is no information on what the legal problems were or whether these occurred on CD or palliative prescriptions.

Some of the differences in the legal error rate between my study and previous studies could be due to the scale of the study, study location and local prescribing practice. The study by Stuart (2013) covered a population of over a million with approximately 19% of pharmacies taking part whilst Sheffield has a population of over half a million (ONS 2011) with approximately 4% of pharmacies taking part. Both studies have a similar percentage of hand-written prescriptions, but more prescriptions were generated by OOH GPs in my study compared to the study by Stuart (2013); 12% compared to 5% respectively. In contrast the study by MacRobbie et al. (2015) had no OOH prescriptions, which may be due to the remote location and low demand to provide a local OOH service. Despite the higher proportion of OOH GP prescriptions in Sheffield, there was a significantly lower error rate in prescriptions from OOH GP providers in Sheffield compared to those in Stuart's study. Furthermore, handwritten prescriptions in Sheffield had fewer errors than in Stuart (2013) or MacRobbie et al.

(2015). The difference could be related to the structure of the OOH services with one main provider supporting Sheffield compared to one central hub and ten OOH bases within the study by Stuart (2013) as well as IT support within the Sheffield OOH service supporting computer generated prescriptions.

There were no prescriptions electronically transmitted via EPS release 2 (EPSr2) in my study or in previously published or unpublished studies on palliative care prescriptions; so it is not possible to ascertain the effect of EPSr2 on the prevalence of prescribing errors. A systematic review reporting the effect of electronic prescribing systems on medication errors suggests electronic systems reduce errors significantly; however, the authors note that studies varied in quality and reporting was poor, which could increase the risk of bias (Ammenwerth et al. 2008).

Moreover, it was not possible to ascertain whether prescriptions written by non-medical prescribers (NMPs) had more or fewer errors since there were none in either my study or previous studies. Prescriptions written by specialist palliative care team members, approximately 2% of the sample in my study, had no legal or non-legal errors. All of the specialist palliative care prescriptions were handwritten. No previous reported studies could be found on specialist palliative care team prescribing errors and this may be worthy of further investigation in future research.

In both my study and Stuart (2013), errors were four times more likely for injectable products compared to non-injectable products,[4] and in Sheffield all of these errors occurred on computer-generated prescriptions from NHS GPs though this should be interpreted with caution due to the small sample size. In MacRobbie et al. (2015) injectable products had a greater proportion of errors compared to tablets with half of all prescriptions for injectable CD products having an error. Legal errors relate to the statutory CD prescription

[4] Figures within the Stuart (2013) include both legal and clinical errors whilst only legal errors occurred on subcutaneous injection prescriptions in my study.

writing requirements in the Misuse of Drugs Act 1971 and the Medicines Act 1968 that specify that the prescription must include a specific dose. This means it is permissible to state ‘one ampoule as directed’ but it is not legal to specify ‘according to the syringe driver chart’ or ‘as directed’. Prescriptions written for drugs at end of life to be administered in a syringe driver may change dose frequently as the patient deteriorates; so prescribers can be reluctant to include a specific dose on the prescription in case this subsequently caused error or confusion if the specific dose to be given on the community syringe driver chart differed to that on the pharmacy dispensed label. The continuation of legal errors on subcutaneous prescriptions in both my study and in Stuart (2013) and MacRobbie et al. (2015) suggests a review of the legal requirements should be undertaken as it is questionable whether legal requirements set in 1971 are relevant to clinical practice today with increasing use of syringe drivers. The error rate may in fact be related to the constraints of an out-dated law (Stuart 2013). Another consequence of prescribing ‘one ampoule as directed’ is this limits the pharmacist’s interpretation of whether a dose is safe since pharmacists do not necessarily have access to syringe driver records or patient records to know what dose is to be given or what drugs are being mixed together. Exceptions would be patients in care homes where they could contact care home nursing staff for this information.

The analysis of prescribed preparations compared with the palliative care formulary showed that issues relating to the choice of product were low with only one in ten not on the commissioned list. The main deviations were different strengths of midazolam injection, size of water for injection ampoules, and use of unlicensed clonazepam injection[5]. In palliative care, only midazolam 10mg/2ml injection is recommended with other strengths

[5] Sheffield has a local informal agreement to hold stock of unlicensed clonazepam injection in a pharmacy even though this is not on the commissioned list. As this arrangement is not formalised it is not taken account of in the formulary figure.

being too dilute to give subcutaneously. Using data from a pilot study (Tsoneva 2011), it was possible to calculate and compare the percent of non-formulary items based on the current stock list with approximately 11% of non-formulary items being prescribed in 2011. This current study may indicate a slight improvement in adhering to the commissioned list. In comparison, Stuart (2013) reported prescribing of inappropriate strengths of midazolam was 30%, significantly higher.

6.2.2 The effect of prescribing errors on timely access to medication

Data from pharmacists' prescription logs showed that legal errors had a negligible impact on the timeliness of supply of urgent palliative care medicines from participating pharmacies in this study since all prescriptions with legal errors were available within 10-30 minutes. Considering the median waiting time for urgent palliative care medicines was ten minutes compared to five hours for commissioned and non-commissioned pharmacies respectively; other factors besides legal errors had a greater impact on timely access to palliative care medicines. Where legal errors did occur on a prescription, some of these could be resolved through a permitted technical change by the pharmacist using the PMR or by contacting the care home nursing staff.

In 2006, changes were made to the Misuse of Drugs Regulations 2001 to allow pharmacists to make minor typographical amendments to prescriptions for schedule 2 and 3 controlled drugs where there is a spelling mistake or where the total quantity is specified in words or figures but not both (Home Office 2015). This change has, as intended, permitted better access to palliative care medications. In an audit by the NHSGGC Controlled Drugs Governance Team in 2009, reported in Stuart (2013), pharmacists made amendments to 15% of CD prescription errors whilst in Stuart's own audit across NHSGGC nearly four years later, pharmacist changes were made to 8% of CD prescriptions (including both legal and clinical errors). In the study by Stuart (2103), resolution of errors took 15 minutes if they occurred during

surgery hours but over an hour OOHs possibly reflecting the higher error rate during this time as well as the difficulties in contacting the prescriber. The time to resolve a prescription error was noted by Stuart (2013) to be less where the pharmacist dispensed against the illegal prescription but made arrangements for a new prescription to be issued. This was suggested to be more likely where the pharmacist was manager of a shop than if the pharmacist was a locum (Stuart 2016: pers. comm., 2 December). In an audit reported in MacRobbie et al. (2015) 55% of legal errors were resolved in less than 15 mins, 28% within an hour, and one took up to 24 hours, though was not needed urgently. In their study only one pharmacist chose to amend the prescription accordingly to the permitted regulations. In other circumstances the pharmacists chose to dispense from the original prescription once contact had been made with the prescriber, which was thought by the authors to try and avoid delay to the patient.

Although all legal errors in my study were on urgently required prescriptions, it is likely the time to resolution for an illegal CD prescription that is not required urgently will be much longer. In such situations, the pharmacist would not be placed into making an ethical decision on the urgency of patient need against the illegal prescription and would more likely require the prescription to be rectified to meet legal requirements before dispensing took place. An audit by the NHSGGC Controlled Drugs Governance Team in 2009, reported in Stuart (2013), stated that 0.5% of CD prescription errors took one day or more to resolve but there is no information on the urgency of the prescription.

Pharmacist access to SCR was not used to resolve any urgent medication queries in the current study; however, having access to up to date information on SCR may support resolution of prescription queries when a prescriber cannot be contacted. Although having access to SCR may help for clinical queries where such information is included on SCR, is updated and the pharmacist has access, it would not resolve the need for the pharmacist to obtain a legal prescription prior to dispensing.

6.2.3 Waiting times for palliative care medicines in a community pharmacy

The maximum waiting time for accessing urgent palliative care medicines in the community pharmacy setting was more than four times longer in the non-LCS commissioned pharmacies in the study (47hr 15min). For subcutaneous medicines either given as a bolus or via a syringe driver, median waiting time was almost 24 hours and maximum waiting time was nearly 100-fold longer in non-LCS pharmacies compared to LCS pharmacies. No other published studies have reported on waiting times for palliative care medications in a community pharmacy setting and the researcher was unable to find any published studies of waiting times for other medicines in a community or retail pharmacy. The time taken to dispense medications is predicated by the availability of stock in the pharmacy and confounding factors such as time of day, number and type of staff and prescription numbers were not taken account of within the analysis. The results are furthermore limited by missing data particularly in the LCS pharmacies where one or both times were missing on the data collection form. Even so, the results demonstrate that pharmacies commissioned to provide access to palliative care medicines in the study were able to supply medication quickly, prioritising urgent and subcutaneous prescriptions in comparison to pharmacies not commissioned to provide such a service since they were more likely to have the necessary medicines in stock. All medications on the palliative care list were available within 30 minutes of a prescription being presented at a commissioned pharmacy. A quick response makes it more likely that a patient's symptoms can be managed in a timely manner where professional staff are available to administer the medication. There is however an assumption that all subcutaneous palliative care medicines are needed urgently unless the customer has completed the customer survey to the contrary. The researcher is unclear of the actual timeframe in which the supply was required and this may have a bearing on the results from non-commissioned pharmacies, which may be more likely to receive a non-urgent prescription. The influence of this in addition to the confounding factors mentioned above means the

results should be interpreted with caution and used as the basis for further studies that control for these variables and their effect on promptness of palliative medication supplies.

Furthermore, the small number of participating pharmacies makes it more likely that some pharmacies could have skewed the data, e.g. large numbers of subcutaneous medicines from pharmacies that are open outside regular hours or pharmacies with small numbers of data collection forms. The three pharmacies that were not LCS providers and therefore not commissioned to hold stocks of palliative care medications took longer to supply than LCS pharmacies. One of these skewed the results with significantly longer times to supply palliative care medicines, which could be because the pharmacy does not hold large amounts of CDs on site, preferring to order these in when a prescription is received. The other two had minimum times similar to the LCS pharmacies. It was noteworthy that the pharmacists in both of these pharmacies had worked with local GP surgeries to draw up a list of medication they would hold for urgent palliative care prescriptions in advance, and the GPs were aware of what stock was available. This may suggest that working in collaboration with GPs may be more advantageous than just commissioning a pharmacy service. If feasible, it would be helpful to complete similar time audits with other commissioned and non-commissioned pharmacies in the UK to provide comparative data including the timeframe for which the drugs were required and controlling for other confounding factors.

There were no electronically transmitted prescriptions using EPSr2 within this study; so it was not possible to judge the effect this could have on waiting times. As at July 2017, even though legislation to allow transmission of schedule 2 and 3 controlled drugs via EPSr2 was passed in 2015, there have been no CD prescriptions transmitted this way in England (NHS Digital, 2017). GP prescribing system suppliers must update clinical systems, and these need to be tested and piloted before full access to CDs via EPSr2 is available (NHS Digital, 2017). As at June 2017, 63.7% of prescriptions in England were claimed using EPSr2 (NHS Digital, 2017). In other countries

where electronic prescriptions are available, pharmacists have reported quicker dispensing times (Hammar et al. 2010; Timonen et al. 2016), and studies in England with EPSr2 suggest quicker dispensing times with better workflow overall (Garfield et al. 2013; Harvey et al. 2014); however, these studies were general and not specific to palliative care medicines.

6.2.4 Referrals to obtain palliative care medicines

One in five of the 55 people completing a customer survey in my study stated they were referred to the pharmacy to obtain palliative care medicines. Furthermore, one in five customers had to go to more than one pharmacy to obtain palliative medicines; increasing to nearly one in three when the prescription included subcutaneous medication. Other people supported the patient in collecting subcutaneous medicines near the end of life with all 31 participants surveyed obtaining the medicines on behalf of the patient. Customers who used the pharmacy but had home deliveries did not take part in the customer survey so it is unclear what effect having a pharmacy home delivery might have had on accessing timely medication.

There appeared to be some evidence of referrals from GP OOH providers, though fewer pharmacies are open OOHs and many of these may have access to palliative care medicines. However, 40% of survey respondents coming to a community pharmacy from the OOH GP service had to go to more than one pharmacy. This finding suggests the OOH GPs may not have directed them to a pharmacy providing palliative care medicines nor did they ring ahead to check the pharmacy had the requested items. There also appeared to be some evidence of inter-pharmacy referral with between 9-16% of customers potentially going to their usual pharmacy first before going to another community pharmacy to obtain palliative care medications.

The high number of people needing to go to more than one pharmacy is of concern as this suggests there is no systematic way of referring relatives to the pharmacies that are commissioned to hold the palliative medicines and

the approach is ad-hoc. This was similar in OOH providers with a higher proportion of OOH attenders needing to go to more than one pharmacy. This suggests healthcare professionals or providers may not be aware of the commissioned pharmacies, relatives are not being directed where to go or cannot access the pharmacy, or the commissioned pharmacies have not got the necessary stock. A baseline audit across a Birmingham network of community pharmacies commissioned to hold palliative care stocks reported only one pharmacy out of nineteen held all palliative care items and some pharmacists were not aware that the scheme was still active (Aslett and Wall-Hayes 2015). This may have been due to a lack of monitoring of pharmacies within the scheme by the former commissioning body (Wall-Hayes 2016: pers. comm., 12 July). Monitoring of such local schemes appears to be deficient and though an electronic system for recording and monitoring service provision exists, the researcher was unable to obtain any information on access to palliative medicines schemes from the system provider PharmOutcomes (Stotesbury 2016: pers. comm., 12 July). Further investigation in Phase 2 of my study suggests that some healthcare professionals may indeed be unaware of the local palliative care scheme from community pharmacies; however, as no OOH GPs were interviewed, it is not possible to substantiate this. Further investigation of referral patterns and close monitoring of the scheme may improve referral patterns and the caregivers' experience. Specifically a future study should interview OOH GPs.

Access pathways for patients on subcutaneous medication near the end of life appear to change when patients are unable to visit the pharmacy themselves and need to call on the support of others to help them with the task of collecting medication. It is also possible that they request or are offered a home delivery by the pharmacy. Customers collecting medicines may use a different pharmacy or several pharmacies that may not be the patient's usual pharmacy, thereby disrupting continuity of care of the patient at this stage of their life. This may have important safety and quality implications for patients (Kripalani et al. 2007; NICE 2016). No published

research could be located on patient or caregiver experience related to changes to continuity of care with pharmacy providers near the end of life but this may warrant further examination.

6.2.5 Discussion of other findings from pharmacy data collection

One of the original statistical objectives was to undertake a stepwise logistic analysis to determine whether there was a relationship between time delay and legal prescription errors, and any other significant variables from the analysis. This detailed analysis could not be achieved as there were few legal errors in the sample and these errors were not associated with a time delay. Insufficient data was collected with no significant factors identified to input into a regression model.

Only one MUR was reported by the pharmacists suggesting advanced services within the community pharmacy contractual framework may be infrequent within this patient group. A similar lack of MURs was reported in cancer patients by Savage et al. (2012). This must be seen in the context of the national priority for MURs within the national pharmaceutical contract, which does not include cancer patients, palliative care or analgesic medications. It also needs to be seen in the context of this study where a high proportion of prescription items (56%) contained one or more subcutaneous medications for symptom management near the end of life and so it is unlikely a patient would be present in the pharmacy at the time of collecting such items.

Compared to the previous pilot study conducted in Sheffield (Tsoneva 2011) and NHS prescription data (HSCIC 2014), there was an unexpectedly low number of palliative care prescriptions recorded by the pharmacists in the study. This could be due in part to the small number of pharmacies generating the data of which three were not part of the commissioned service; so were perhaps likely to have lower levels of palliative care

prescriptions but also could relate to the rarity of such prescriptions and variation in practice. It could also be due to increasing numbers of these drugs are supplied pre-emptively on discharge from hospital and inpatient units with specialist palliative care team involvement thereby reducing primary care prescribing. In some cases, pharmacies only recorded information on opioid prescriptions with no other medicines on the data collection form for other conditions. This may be due to some pharmacies separating prescriptions, e.g. prescriptions for opioids may be on a separate form to other usual medicines that go into an MDS, or the pharmacists were unclear on the need to include all items on the data collection form or had insufficient time to do this. Another explanation could be that not all palliative care prescriptions were identified. Subcutaneous medication prescriptions made up 56% of the sample, which may suggest that pharmacists saw these as 'palliative' even though the inclusion criteria included oral morphine, oxycodone and opioid patches but fewer prescriptions for these were included. It could be that where palliative patients were on a mix of oral and subcutaneous medications, these were on separate prescription forms.

Identifying that someone is palliative compared to someone who is housebound with chronic pain may be difficult for pharmacists who are not informed if someone is palliative and need to establish that intuitively or find out in an ad hoc way. Pharmacists had no reliable way of finding out a patient's cancer diagnosis and determining whether they had cancer pain in a study by Savage et al. (2012). Communicating such issues with pharmacists can be productive since pharmacists, who learn about a patient's palliative nature and are engaged with the process, are more likely to stock the necessary items in advance (Tait and Swetenham, 2014). In their study, Tait and Swetenham state that 21% of pharmacists were informed of a patient's palliative care status from another healthcare professional, which suggests, as with Savage et al. (2012), that community pharmacists are not usually involved in these conversations.

In the customer survey, respondents reported high satisfaction for the service they received from pharmacies with most either not commenting or providing positive comments. One customer commented that the pharmacy should keep the necessary palliative care medications in stock. Another customer reported they always ring up in advance to order their CD medication allowing the pharmacy time to order this in.

6.2.6 Summary of key findings from Phase 1 study

In summary, there is no evidence from this study that errors on prescriptions for palliative care medicines lead to a delay in obtaining medication in comparison to other factors. Further investigation of patient referrals and the effect of electronic transfer of palliative care prescriptions may be warranted, in particular when CD prescriptions can be transmitted electronically, to assess whether this speeds up timely access to palliative care medication. There was a statistically significant difference in the time taken to obtain urgent and subcutaneous palliative medication between commissioned and non-commissioned pharmacies with the latter less likely to keep the requested drugs in stock. However, those pharmacies that had worked with local GP surgeries to draw up their own list of palliative care medications to keep in stock had similar minimum times for accessing medication as LCS pharmacies suggesting that when pharmacies are involved and informed of decisions they are able to provide timely access. Future analysis into timely access to palliative medicines should control for confounding variables between pharmacies within the analysis.

6.3 Findings from Phase 2: Interviews with community pharmacists and other healthcare professionals

This section presents a discussion of the findings related to the qualitative Phase 2 study presented for each of the two themes emerging from the qualitative analysis: timely access to palliative care medicines and the community pharmacists' role in palliative care. Following this, the objectives within Phase 2 are reviewed to assess whether these were achieved.

6.3.1 Factors causing delays in obtaining palliative care medicines

Obtaining timely access to medication emerged as a major theme within the qualitative study with all groups of healthcare professionals raising concerns leading to poor access to palliative care medications, particularly subcutaneous medicines near the end of life. The data arising from the analysis on factors causing delays has been classified into two sub-themes: environment and resources, and communication and collaboration.

6.3.1.1 Environment and Resources

Other health professionals recognised that pharmacies cannot hold stocks of all medications; however, community and specialist palliative care team nurses expressed significant frustration at trying to obtain palliative care medications towards the end of life. It was felt by community nursing staff that a considerable amount of nursing resource was required for advanced planning to ensure medications were in place, which put community nursing staff under intense pressure. In some scenarios, due to national stock shortages and the difficulties experienced, GPs were more cautious and rang the pharmacy in advance to check on pharmacy stock availability before or while writing the prescription. Nurses felt that if more pharmacies held a basic stock of palliative care drugs, this would help. Maintaining stock availability by using a network of pharmacies has been done in Northern Ireland, Scotland, and in England (Bennie et al. 2012; Armstrong 2017; PSNC 2017b); to ensure a pharmacy in the locality is designated as a 'palliative

care pharmacy'. Sheffield has a list of nineteen pharmacies providing access to palliative care medicines but interview data suggests this is either not widely known by GPs and nurses, or pharmacies do not maintain the stock.

Community pharmacists working in the LCS commissioned pharmacies were aware of the CCG agreed list of palliative care medicines and made efforts to ensure stock was available, though in exceptional circumstances, they were not able to supply when more than one prescription was received on the same day or the quantity in stock was insufficient to cover the prescription. Having an agreed list of palliative care drugs allowed the pharmacies to maintain the agreed stock levels to cover most circumstances. Core palliative care medicine lists have been established in other areas (Bennie et al. 2010; Akram et al. 2012; Tait et al. 2014; PSNC 2017b) as a way of supporting access to palliative care medicines near the end of life. Interestingly, two pharmacists working in pharmacies not part of the commissioned service had worked with local GP surgeries to instigate their own local palliative list to resolve the problem of stock availability in the pharmacy. Similarly in Savage et al. (2012), two pharmacies held an extended range of palliative care medicines without being funded by a commissioned service.

GPs and other community healthcare professionals were unaware of the CCG approved list of medicines in palliative care and those pharmacies who were commissioned to hold the medication in stock. Instead, GPs relied on an inbuilt prescribing auto-consultation template within SystmOne, which the CCG Medicines Management Team and IT services had developed, to ensure they prescribed the correct products. A similar system using an EMIS template has been used successfully in NHS Scotland GGC (Bennie et al. 2013a). Research suggests that the use of a restricted 'formulary' of palliative care drugs helps to reduce prescribing errors, aids prescriber familiarisation, supports stock control resulting in less delays (Akram et al. 2012; Avery et al. 2012; Savage et al. 2012). This suggests that strategies using the GP clinical system can be effective in ensuring the correct product is selected, making it more likely to achieve timely access to medicines near the end of life.

GPs said they found the general practice clinical computer system helpful in generating a prescription meeting legal requirements, though results from Phase 1 suggest that legal prescription errors on computer generated prescriptions still happen occasionally. GPs did not routinely check resources such as the British National Formulary (BNF) to write a CD prescription and one GP was a little confused as to the legal requirements. Legal errors on CD prescriptions have caused ethical dilemmas for community pharmacists (Akram et al. 2012; Bennie et al. 2012; Savage et al. 2012; Stuart 2013), though it is reported that computer-generated prescriptions have reduced these problems (Savage et al. 2012). Legal prescription errors may cause delays that could impinge on patient care depending on the pharmacist's method of resolution (Bennett et al. 2009; Akram et al. 2012; Stuart 2013); however, such errors were not generally seen to cause a problem in my study. Often minor typographical errors could be amended by the pharmacist; also noted to support access for a small proportion of CD prescribing errors in other studies (NHS Greater Glasglow and Clyde (NHSGG&C) Governance Team 2009: cited in Stuart (2013):76; Stuart 2013). The regulatory framework for controlled drugs was considered a barrier where the prescriber's intention was clear but the prescription was illegal, and the pharmacist was unable to amend the prescription or receive a fax, leaving the pharmacist with an ethical dilemma of whether to dispense from an illegal prescription (Home Office 2015b). This may not be as much of an issue in future with the provision of EPS delivered CD prescriptions that may allow quicker resolution of CD prescription errors (NHS Digital 2017). The findings from this section corroborated the results from the Phase 1 prescription analysis on prescription errors and time delays.

Community pharmacists expressed difficulties around the storage of CDs since some pharmacies had small CD cabinets that did not provide enough space to store and hold large amounts of CDs. Where pharmacies ordered CDs in error, these could not be returned to the wholesaler leaving the pharmacist with a storage and regulatory issue until a further prescription was received, or the stock expired and could be destroyed by an authorised

witness. GPs and nurses seemed to be unaware of this issue and expected most pharmacies to keep a small amount of palliative care medicines in stock. For some pharmacists, it was pointed out that CDs were not stocked in the pharmacy, for example, if the pharmacy was not commissioned to hold palliative care drugs, and the pharmacist relied on receiving a prescription in advance of making a supply. Regular repeat CD medicines did not cause problems as often a patient or their caregiver would ring to request the CDs from the pharmacy when requesting the prescription from the GP. When pharmacies were not informed in advance to expect a palliative care CD prescription, it would often result in the healthcare professional being told it would be the next day before it would be available. Healthcare professionals felt this would be too late for the patient, and the pharmacist and pharmacy staff felt as if they had 'failed' because they could not supply the drugs. Such difficulties have been expressed in other studies (Savage et al. 2012; Faull et al. 2013; Tait et al. 2013; Tait and Swetenham 2014) and have been mitigated by transferring medication between pharmacies, referring the customer to a pharmacy with the requested items, or contacting the prescriber (Akram et al. 2012; Bennie et al. 2012; Tait et al. 2013; Tait and Swetenham 2014).

Prescriptions of specialist medicines for patients managed by the specialist palliative care (SPC) team required forward planning to ensure they were prescribed in advance to avoid delays to treatment. SPC team members expressed how they had learnt through experience to contact the pharmacy when they were going to prescribe something unusual that may not be kept in stock. Also the SPC team were mindful of being resourceful, utilising medications available in the home until any necessary medication could be ordered in.

Transporting the medications from the pharmacy to the patient's house could also prove difficult and could cause a delay unless the family caregivers or friends could support this process. Not all pharmacies provide a delivery service and since pharmacy delivery is not an NHS funded service, there

may be certain restrictions and conditions for when a delivery service is offered. Customers may be charged, for instance, if the patient does not get their regular items dispensed from that pharmacy, even though the items are for end of life care. Healthcare professionals were unclear on the terms and conditions for pharmacy delivery services as such services were not universally available. In a study by Akram et al. (2012), a taxi protocol was available to collect or deliver urgent medications between pharmacies or the patient's home free of charge; however, this system was viewed to be 'bureaucratic' with some pharmacists preferring to deliver the medicines themselves.

6.3.1.2 Communication and Collaboration

Healthcare professionals identified that planning or 'pre-empting' in advance of need towards the end of life supported good symptom management and ensured timely access to palliative medicines also identified by others (Wowchuk et al. 2009; Wilson and Seymour 2017). This often involved the patient's community nurse or palliative care team liaising with the patient's GP to review the patient and instigate plans; however, community pharmacists were generally not part of this process, and GPs did not inform the pharmacist that the patient was palliative at the time or in advance of any decisions being made. The first time the pharmacist may be aware is when a prescription is presented to the pharmacy or if a nurse or GP contacts them to ascertain availability of medicines at the time of or soon after the prescription writing process. Nurses identified cases where supply of medication for palliative patients had worked well in the past, often where the pharmacist was proactive or where good communication pathways existed between GPs, the nursing team and pharmacy staff. Tait et al. (2013) found that only 21% of pharmacists were informed of a patient's palliative care status from another healthcare professional, though 87% of those surveyed knew at least one palliative patient or carer using the pharmacy. They also observed that pharmacies informed of a patient's palliative care status were

statistically more likely to keep a larger range of medicines from the palliative care list than pharmacies that were not informed, indicating that greater communication between healthcare professionals supports more timely access to palliative medicines (Tait et al. 2013).

Communication from commissioning organisations to healthcare professionals and providers on accessing palliative care medicines appears to be not effective since GPs and nurses did not know which pharmacies stocked palliative care medication or the existence of a list of drugs, instead relying on GP clinical systems and local knowledge to guide choice. By contrast, pharmacies in the commissioned service were aware of the list and managed stocks accordingly with pharmacists considering locally commissioned pharmacy services being well integrated. An unpublished audit in Birmingham suggests that a lack of clarity on local commissioning may be more of a widespread problem with pharmacists in a local scheme reportedly being unaware of a service being commissioned from the pharmacy (Aslett and Wall-Hayes 2015). Also a review of LCS/LES schemes on the PSNC website shows that a number of these are not on updated NHS contracts with schemes being commissioned by a variety of organisations suggesting the PSNC information is out of date or schemes are not actively being reviewed and monitored. This could be due to NHS structural changes in 2013 when primary care trusts (PCTs) were abolished and replaced by CCGs with many of the former LCS contracts under PCTs not being updated. Some schemes are being regenerated and retendered under the new contracting arrangements, and this may include arrangements for commissioners to monitor these schemes in future (Bunn 2017: pers. comm., 8 March). There could also be resource implications as monitoring of such schemes requires dedicated time and a co-ordinator to facilitate this (Armstrong 2017: pers. comm., 15 March).

6.3.2 Factors facilitating or limiting community pharmacist's involvement

Healthcare professionals gave positive feedback on their experience and interactions with community pharmacists stating how helpful, accommodating and resourceful they were. There was a feeling of goodwill in their interactions particularly for patients at the end of life. There were a number of factors facilitating or limiting the pharmacist's involvement that are discussed further under the sub-headings of: skills, knowledge and training, and collaborative relationships.

6.3.2.1 Skills, knowledge and training

Healthcare professionals saw community pharmacists as having limited experience in palliative care and they felt that some pharmacists may not be familiar with the use of pre-emptive medications at the end of life. A lack of experience in the specialist area of using syringe drivers was cited by one of the community pharmacists, though all the participating pharmacists had experience of palliative care prescriptions and most had completed additional education. GPs and some other healthcare professionals identified the pharmacist's knowledge as being helpful in advising on alternative formulations when patients could not swallow or when products became unavailable due to national stock shortages and some pharmacists were utilised in training and educating GP trainees and nurses new in practice.

GPs thought it might be helpful for pharmacists to advise on mixing drugs given via a syringe driver; however, this would be difficult noting the pharmacists' lack of practical experience and training in syringe drivers but also because the community pharmacist does not usually have access to the syringe driver record chart, which is kept in the patient's home or in a care home. Community pharmacists in a Scottish programme were nevertheless able to advise on mixing of drugs though received specific training and support for this (Bennie et al. 2012).

Having skilled pharmacy support staff who can deal with prescription queries was crucial in releasing the pharmacist to attend to professional roles. In most pharmacies palliative scripts would be left to the pharmacist but there was the potential for support staff to resolve queries and manage stocks. In Scotland, Macmillan Pharmacist Facilitators have supported and trained pharmacy technicians, dispensing assistants and counter-staff to manage prescription queries thereby releasing the pharmacist's time (Bennie et al. 2012). Likewise, pharmacists have identified the need to train pharmacy counter-assistants and locum pharmacy staff to better identify palliative care prescriptions and avoid delays (Akram et al. 2012).

Studies have focused on the need for additional training for pharmacists (O'Connor et al. 2011a; O'Connor et al. 2011b; Jiwa no date) and for pharmacy support staff (Bennie et al. 2015; MacRobbie et al. 2015) including communication skills, palliative care symptoms and signposting to other services. Though the pharmacists in my study had completed additional training including CPPE training in palliative care and were aware of being empathetic with patients and family caregivers it is unclear what information they have to direct patients and their caregivers to other national and local support services or whether they had undertaken additional communication skills training not included in the CPPE palliative care pack. Pharmacists cited work with a national cancer charity as supportive in signposting to other services; however, not all palliative patients will have a cancer diagnosis and pharmacists may not have access to the patient's clinical record to ascertain this. Furthermore since the *Living with and Beyond Cancer Programme* is not universally provided, signposting beyond those involved in the scheme may be ad-hoc (NHS Sheffield CCG 2016). The lack of communication and the potential for pharmacists to be isolated from the rest of the primary healthcare team makes this a cause for concern as it makes it more difficult for pharmacists to get involved with palliative care patients and their families, which has also been highlighted in previous studies (Ise et al. 2010; O'Connor et al. 2011a; Savage et al. 2012). The South Yorkshire and Bassetlaw Sustainability and Transformation Plan (STP) provides some

encouragement as it plans to ‘improve signposting to services and support people with education to help them manage their medicines and pain control’ (Cash 2016: 30). The need to undertake advanced communication skills training has been highlighted in other studies (Bennie et al. 2010; O'Connor et al. 2011a; O'Connor et al. 2013; Jiwa no date)

6.3.2.2 Collaborative relationships

In my study, community nurse’s preferred face to face relationships based on trust; also reported in other studies (Savage et al. 2012; Faull et al. 2013; Wilson and Seymour 2017). Yet, nurses had limited opportunities to network or build relationships with pharmacists’ due to work pressures and in some cases decentralisation of their nursing teams away from GP and pharmacy hubs. Faull et al. (2013) highlight the importance of effective relationships and team working within and across organisational boundaries and crucially personal links between professionals in the process of advanced care planning and anticipatory prescribing. In my study, interviewees relayed stories of positive working relationships between nursing teams and pharmacies that supported patient care, timely access to medication and reduced nursing time in accessing palliative care medications. The advantages of collaborative and interdisciplinary working in palliative care are well reported in the literature (Hearn and Higginson 1998; Meier and Beresford 2008; Goldsmith et al. 2010; Oishi and Murtagh 2014) requiring pharmacists to actively participate and collaborate in the interdisciplinary team (ASHP 2002; Gilbar and Stefaniuk 2002; Hussainy et al. 2011; O'Connor et al. 2011b; Cortis et al. 2013; Pruskowski 2017); so improved collaboration between healthcare professionals in primary care including pharmacists should be beneficial. Indeed, den Herder-van der Eerden et al. (2017) report in their study of continuity of care within integrated palliative care across five European countries that patients’ experience relied on a small group of trusted health care professionals who shared information and worked collaboratively with all health care professionals in the patients’ care

network. New technologies and remote working including teleconsultation, telehealth, and shared digital records may support streamlined working practices in future but are not universally available at present. Examples of practice such as those being taken forward within NHS Vanguard sites as part of the general practice forward view technology transformation fund (NHS England 2017a), remote clinical pharmacy services to rural areas of Alaska (Perdew et al. 2017), and remote palliative care services within Wales (RPS Wales 2016) and Scotland (Inch et al. 2017) may support further integration of pharmacists within patient's palliative care networks.

GPs and community nurses were unclear on any extended role for community pharmacists in palliative care and considered pharmacists provided a traditional role of dispensing medication promptly and checking the safety of medication doses. Though evidence suggests that community pharmacists' interventions in community palliative care are beneficial (Needham et al. 2002) in this study, there appears to be a lack of clarity of an extended role that pharmacists currently do or could provide in the future for patients with palliative care needs. There was a willingness from the pharmacists to do more; however, a variety of barriers existed including the terms and remuneration within the current pharmacy contract, the responsible pharmacist regulations, the lack of integration within the primary care team, lack of access to patients' electronic records, and limited access to palliative patients where they are unable to attend the pharmacy. The lack of integration and payment systems have also been noted by (Jiwa no date) in their feasibility trial of a community pharmacist home medication review service. In Scotland, the use of a nationally contracted Chronic Medication Service (CMS), which includes the development of a pharmaceutical care plan in palliative care, together with national resources has supported an extended role for the community pharmacy team in palliative care (MacRobbie et al. 2009; Bennie et al. 2012).

Where there was an existing relationship between community pharmacists and GPs, the GP was more likely to consult or involve the pharmacist on a

specific case by case basis. Local collaboration with GP practices through participation in the GP Access Fund supported development of such relationships; however, concerns remained on appropriate sharing of information with pharmacists and pharmacy teams with both GPs and members of the specialist palliative care team. These concerns meant that GPs and healthcare professionals did not communicate whether a patient was palliative with the pharmacist, instead leaving them to work this out intuitively from the prescription or requiring the pharmacist to proactively have this discussion with the GP. Considering the potential lack of contact with other primary care team members and the lack of information that is shared with community pharmacists, there is a risk that patients may not have effective symptom control, and in the worst case scenario could experience a patient safety incident relating to the use of medication such as opioid analgesics. Lack of access to clinical information by pharmacists has been reported previously (Akram et al. 2012; Avery et al. 2010; Savage et al. 2012), which limits the pharmacist's ability to detect medication errors (Avery et al. 2010), but poor information transfer between professionals could also result in not meeting patient's and caregiver's needs (den Herder-van der Eerden 2017). Information from the National Survey of Bereaved People in England found that only 19% of people stated that pain was relieved 'completely, all of the time' in the community; figures were much higher in hospitals (39%), care homes (46%) and hospices (63%) (ONS 2014). Whilst some of this will be reflective of the care setting and the staff available to support patients, it also suggests that there is room for improvement in managing symptoms such as pain in the community and the potential role of community pharmacists within the primary care team.

GPs tended to view community pharmacists as providing mostly a supply function and supporting compliance in medication taking for patients in palliative care, and did not feel pharmacists should get involved in the more complex issues facing palliative patients and their families. This was also noted by (Jiwa no date) where GPs did not recognise an extended role for community pharmacists in palliative care. By contrast, community

pharmacists described a range of activities that were provided to 'palliative users' including the provision of psychological support to those not in the immediate family. A local scheme developed with a national cancer charity had enabled community pharmacists to get more involved in symptom management for certain cancer patients going through or recovering from treatment as well as providing psychological support. Though not viewed as 'palliative' by the pharmacists, this has enabled better access to treatments for symptomatic relief closer to the patient's home and is likely to reduce the need for hospital visits in future (Macmillan and NHS Commissioners Working Together, 2016). The researcher is aware of a further project on *the role of the community pharmacist in breast cancer services* that is being completed as part of a PhD (Nottingham University, 2017) that may be able to provide further evidence on an extended role for community pharmacists in this area in future. There, however, continues to be inequity of access to palliative care services for patients with conditions other than cancer (Oishi and Murtagh, 2014) and the community pharmacist's accessibility may provide an avenue for expanded provision of services across all diagnoses.

In my study, there appeared to be limited time and resources for pharmacists to have a proactive approach to collaborating, meeting and working with other healthcare professionals and also limited opportunities for other healthcare professionals, to meet with community pharmacists, making it difficult for collaborative networks to flourish. The provision of joint training events and sharing of practice across professional groups could be explored both at a local and city-wide level to provide opportunities for joint working.

The next sub-sections review findings against the Phase 2 study objectives.

6.3.3 Do community pharmacies within the LCS provide more than a supply function?

Within the study, there was little evidence that the LCS provided more than a supply function; however, this is not surprising as the LCS is designed for

quick access to palliative care medicines and there are no additional services within the LCS. Participating pharmacists discussed the processes in place to check and reorder palliative care medicines prior to the weekend phenomenon. There was also discussion within one of the LCS pharmacies to provide further specialist palliative care stock medicines, beyond the LCS local palliative stock list, which should be explored further by commissioners within a pharmaceutical needs assessment.

There was little evidence in this study of pharmacists providing additional clinical services and support to patients and carers. It is likely that medication support is provided ad-hoc relying on the pharmacist's skills and training, time availability and resources such as support staff, and whether the patient or carer came into the pharmacy proactively requesting advice.

6.3.4 Pharmacists' perceptions and experiences in the delivery of palliative care services

Pharmacists mostly experienced palliative care as requests for prescription medications near the end of life. Sometimes they were asked for advice on choice of alternative products when patients had swallowing difficulties but they rarely interacted with community nursing or specialist palliative care teams except on availability and supply of palliative care medicines.

Two pharmacists working in pharmacies that were not within the palliative LCS had the perception that keeping some basic palliative care medications in stock was inconsequential compared to the difference it would make to the patient. In both pharmacies, there had been a past experience where they were unable to supply medication when this was needed urgently. This experience seems to have had a significant impact on their decision to keep a limited number of palliative care medicines in stock. A different pharmacist working in a non-commissioned pharmacy trivialised the service as a stock and supply function and justified being less likely to hold palliative care stocks since another pharmacy in the locality was already commissioned to provide these.

6.3.5 Does the delivery of palliative care have any effect on community pharmacy staff?

It was not possible to fully answer this objective as the views of pharmacy staff were not established directly since only community pharmacists were interviewed in the study and sometimes they felt unable to comment on the effect the provision of palliative care had on pharmacy support staff. This has been considered a limitation of the study and is discussed in more detail in section 6.7.2.

Pharmacists considered pharmacy support staff were accustomed to a wide demographic of people who visited the pharmacy and staff showed sensitivity and empathy in the context of palliative care and bereavement. In some smaller localities, pharmacists expressed the concern that pharmacy staff may know families of the bereaved and this may cause some distress. The perspective of the pharmacists was that close working conditions in the pharmacy, and the fact that many people may visit the pharmacy and be upset for a variety of reasons, meant most pharmacy staff were able to cope with the emotional issues of working with bereaved relatives and were able to support both relatives and each other. The pharmacists felt that suitable support networks and referral processes were available both inside and external to the pharmacy. This would need to be substantiated with the views of pharmacy staff directly.

6.3.6 What is the community pharmacist's current and future role in palliative care?

The evidence presented in the study shows that most healthcare professionals did not know what community pharmacists did or what input they could have for palliative patients, which is not surprising when there appeared to be limited opportunities to work with pharmacy teams. Despite the national direction to extend the role of the community pharmacist, other healthcare professionals lacked insight into what community pharmacists do beyond a traditional role of supplying medication, which also meant the

national vision for a role in palliative care was not enacted on the ground. This could be due to the evolution of the 'clinical' pharmacist role that has seen the pharmacist move from a scientific role manufacturing items on a prescription to a healthcare role working in collaboration with patients and other healthcare professionals and the resultant 're-professionalisation' not understood by others in the primary healthcare team (Hughes and McCann 2003; Bush et al. 2009; Latif 2012; Blondal et al. 2017). In developing the thematic analysis framework for this study, it was noted that some of the coding labels emerging from the interviews with other healthcare professionals included themes for pharmacy services provided by pharmacy corporate bodies not within the pharmacist's control, for instance, delivery services (which are specified within the pharmacy corporate body guidelines). Other healthcare professionals had a lack of understanding of community pharmacists as well as the pharmacies they work in and the services they offered potentially causing a feeling of mistrust through corporatisation of pharmacy bodies and a target driven culture (Bush et al. 2009; Mitchell 2016). This is not unique to my study with others also reporting lack of clarity on the pharmacists' role (Smith et al. 2013; Davies et al. 2014; Jiwa no date). Pharmacists and pharmacy corporate bodies could provide more information on pharmacy services to healthcare professionals but also potentially to patients as advised by Bennie et al. (2012) to show what services they provide to support patients and their family caregivers. GPs are open to involving pharmacists more in the patient's clinical care where they have expertise and no conflict of interest (Kelly 2016; Primary Care Sheffield (PCS) 2016; Blondal et al. 2017)

The community pharmacists' role in clinically reviewing the prescription against legal regulations, and checking safe and appropriate doses was a consistent theme across professional groups; however, it was acknowledged that the pharmacist is not always aware of the specific dose for medications administered via a syringe driver as this could not always be determined from the FP10 prescription form. Core service functions for community pharmacies

have been described by Bennie et al. (2012) including the clinical assessment of prescriptions to ensure safe doses.

Talking with patients and their carers was seen by community pharmacists to be an important role but time constraints, the fact that the patient may not come into the pharmacy and remuneration of nationally contracted pharmacy clinical services were identified as barriers to achieving this in palliative care. Davies et al. (2014) report on a time audit suggesting that only 10% of the community pharmacists' time is spent on counselling patients attending the pharmacy. Pharmacists were highly concerned and paid attention to customer's needs, showing empathy at what was perceived as a difficult time; however, there was also the perception from healthcare professionals that pharmacists were reluctant to see patients as their responsibility, and were detached seeing their job as only to sort the prescription. This could be related to the community pharmacist's freedom to act within the constraints of professional organisation, regulatory and pharmacy group policies (Svensberg et al. 2015) as well as workload pressures.

The provision of pharmacy clinical services such as MURs and NMS was seen to be minimal in my study and in palliative care generally as many barriers existed, for instance, patients do not visit the pharmacy, and pharmacists felt unequipped to deal with the emotional issues (Savage et al. 2012), and palliative care, cancer and analgesics were not within the target groups for the MUR or NMS service (PSNC 2017a). Furthermore, the patient would normally need to be present in the pharmacy for it to be considered an MUR, negating the benefit of discussing medication with the patient's carer who may be involved in supporting the patient's medication-taking at this time. Where a pharmacist obtains patient consent to undertake an MUR by telephone or off the pharmacy premises, the pharmacist must request prior permission from the local NHS England team to receive the MUR payment. Since palliative patients may deteriorate rapidly or suddenly, it may not be feasible to request prior permission. Another issue is that when a pharmacist leaves the pharmacy premises, they must do so in accordance with the

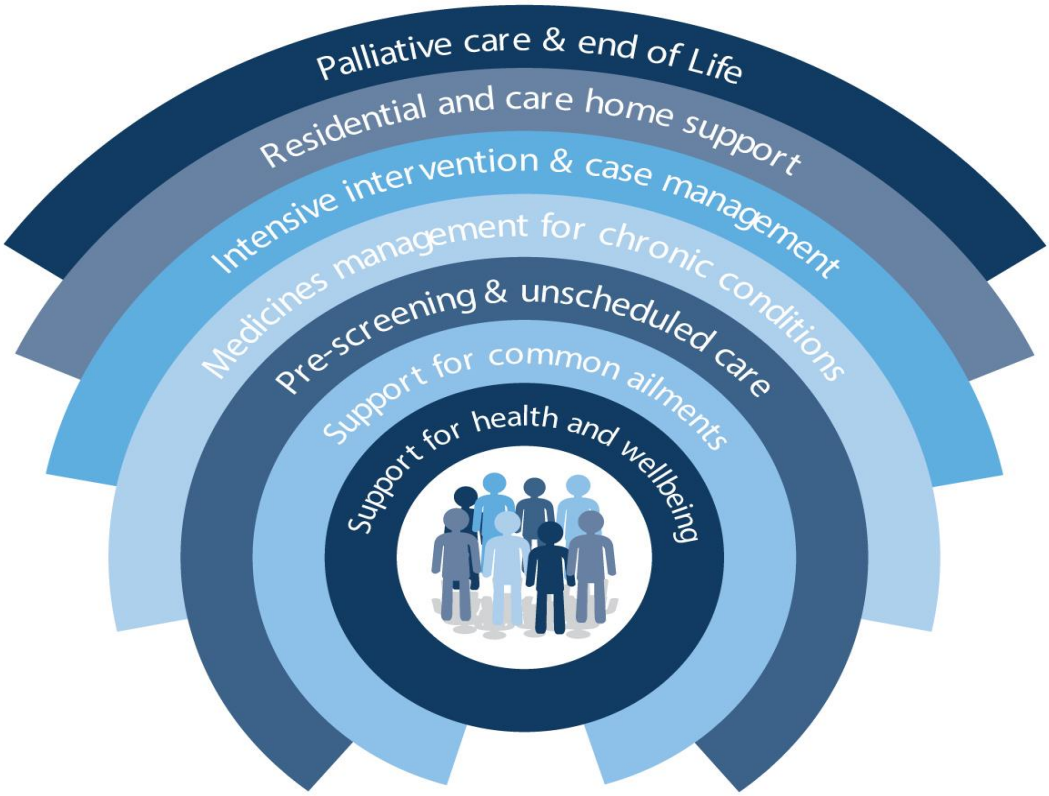
responsible pharmacist regulations, which only allow for them to be absent for a maximum of two hours in a day. Whilst away from the pharmacy, all dispensing and supervised pharmacy sales cannot take place, which has been reported to have a negative impact on patients (Blenkinsopp et al. 2007; Urban et al. 2008; Latif et al. 2013). Pharmacies are paid a flat fee for each MUR whether the MUR occurs in the pharmacy, in a patient's home, or via telephone and there is no provision to pay for transport costs. Other barriers such as lack of time, lack of staff resources, and increased workload factors have been reported in the literature (Bradley et al. 2008; Latif and Boardman 2008; Gidman et al. 2012). Although MURs are not clinical reviews, there may also be difficulty in accessing the patient's current medication list due to multiplicity of prescribing across different settings, for example, specialist prescribing of oral chemotherapy or treatment for pulmonary fibrosis. All together there is no incentive for community pharmacists to undertake MURs within the palliative care population and it is uncertain what, if any, clinical pharmacy support palliative care patients and their family caregivers receive. This was identified as a gap within my study for housebound palliative patients who may be on a lot of medication and by GPs who thought that carers would benefit from more support and information on managing medications. This has also been reported within studies, including bereaved carers managing medications near the end of life (Payne et al. 2015), barriers to post discharge MURs for housebound patients, those with carer support (Ramsbottom et al. 2016), and focus groups of palliative care patients and their carers (Bennie et al. 2013b) who wanted more face to face contact with a pharmacist. There is evidence that community pharmacists in a multidisciplinary environment can provide more support to domiciliary patients as demonstrated in a Sheffield pilot scheme (Alton 2015); however, this required additional local funding, was time limited and it is unclear whether it was economically cost-effective.

It was identified by some pharmacists, they may have a role in symptom management, for example, for patients undergoing or living with the effects of chemotherapy or radiotherapy in the community. Participating GP and

pharmacists recognised that supporting patients to take their medication through concordant conversations, and making changes to formulations or suggesting alternate drugs where patients had swallowing difficulties may also support symptom management in the palliative patient and for which community pharmacists could have a role.

The suggested continuity of care offered by community pharmacy has been incorporated into a model developed by RPS Wales as part of its strategic vision for pharmacy. This model shows how people may access pharmacy over the whole of their life from health and wellbeing support through to palliative and end of life care. Interactions between the patient, the pharmacist and pharmacy staff build trusting relationships, thereby further enhancing patient centred care.

Figure 6.1 Patient interactions with pharmacy along their care journey
from Your Care, Your Medicines (RPS Wales 2014). With kind permission.



6.3.7 Discussion of Phase 2 study results

Participating community pharmacists reported they were aware of the existence of a ‘network’ of pharmacies commissioned by the CCG to provide palliative care medicines, though in contrast most other healthcare professionals did not appear to be aware of this. The researcher thinks this could be explained by a proactive LPC that has supported community pharmacy involvement in commissioned services, having commissioned thirteen local services in 2015/16 (CPS 2016). Another possible explanation could be that participating GPs and other healthcare professionals were the ones not aware; however, this explanation seems unlikely since participants came from different areas and practices across the city and had a significant number of years of experience between them. Furthermore, members of the specialist palliative care team were unaware, suggesting a more systemic lack of knowledge of a ‘network’ of pharmacies. Information on the pharmacies commissioned to provide the LCS needs to be reviewed and disseminated widely to capture all healthcare professionals and contractors involved with palliative care patients. Furthermore, this must be an ongoing process of communication embedded across all local organisations to capture staff changes.

In my study, most healthcare professionals had found community pharmacists to be accommodating and helpful particularly when informed the patient was end of life; however, there were also examples expressed by other healthcare professionals where pharmacists seemed detached and less helpful. Reasons for this could include the community pharmacist not being aware of the commissioned service or there may be a large turnover of staff or locum staff working in the community pharmacy who are not aware of local services, also observed in (Smith et al. 2013). Some healthcare professionals suggested community pharmacists may not feel responsible for patients in their area since patients are free to go to any pharmacy, not having to register with a community pharmacy as happens with GP practices. This is noted as one of the strengths of community pharmacy, which allows

access at a place and time convenient for the customer (Thornley et al. 2017), though perhaps this could also disrupt continuity of care especially towards the end of life when patients rely on family caregivers and friends to fetch medication for them, and who may not access the patient's regular pharmacy. This division between the patient's regular pharmacy and a 'palliative pharmacy' can cause resentment where the regular pharmacy has built up a relationship over a number of years (Armstrong, 2017 pers. comm. March 13). This could manifest as friction from pharmacies not commissioned to hold palliative care medicines as seen in my study and resistance to hold palliative care medication where another pharmacy in the area provides this service. The availability of a 'network' of pharmacies holding palliative care medicines is a model used in other areas (Bennie et al. 2012; Armstrong 2017: pers. comm., March 13) and often pharmacies provide services OOHs but this was also noted by (Armstrong 2017: pers. comm., March 13) to cause some friction. The patient's regular pharmacy should be supported to provide continuity of care close to the patient's home, reducing the time for the patient's carer away from the house and transportation. Pharmacies should be encouraged to work with GP practices and consider providing services to meet their customer's needs. Patients should be encouraged to register for EPS and other pharmacy services to support their long term care needs.

GPs and other healthcare professionals generally held a very traditional view of the pharmacists' role in supplying and dispensing medication promptly, and were unaware of what other support or services the pharmacists could provide, also observed in (Jiwa no date). GPs and other healthcare professionals' contact with the pharmacist were mainly in connection to medication supply, also witnessed in Savage et al. (2012). GPs identified the pharmacists' role in completing a clinical screen of the prescription, checking the safety of the medication, and checking for interactions between medications. GPs and a doctor in the specialist palliative care team identified the community pharmacists' role in clinically screening the prescription, and suggested they could provide advice on mixing and the compatibility of

medicines given in a syringe driver. Then again, they also understood that the community pharmacist may not be aware of the specific dose to be administered by injection or those drugs that were to be mixed together in a syringe driver since that information was not always available on the FP10 prescription form. Such information was available on the community medicines administration record but the community pharmacist did not always see this.

Integration of community pharmacists with GPs and primary care teams did happen but not on a widespread basis, and was more likely in small localities with a single GP practice or where the community pharmacist worked in the GP practice. In some cases pharmacists described hardly ever speaking to a GP on the phone, and GPs would not discuss palliative care patients unless requesting specific advice. A facilitator to the integration of pharmacists within primary healthcare teams was proximity to the GP practice with high-street and town centre pharmacies or those with several GP practices on their radar feeling that their relationship with GP practices was not as strong. Previous research on integrating community pharmacists into the primary health care team within local pharmaceutical service (LPS) pilots reports that co-location of pharmacies and GP practices facilitates integration (Bradley et al. 2008) with decentralisation of nursing teams away from primary care hubs causing challenges in communication (Wilson and Seymour 2017). In my study GPs, community pharmacists and community nurses described good working relationships when they were working in close proximity with each other., Formal palliative care team meetings such as those within the Gold Standards Framework (GSF) support joint decision making in primary care (Amass 2006; Clifford et al. 2016) but GPs and community pharmacists in this study stated that community pharmacists are not invited to GSF meetings, and it would be difficult logistically to enable this to happen, such practicalities also noted by Akram et al. (2012). Attendance at palliative care meetings has been suggested as a way of enhancing the community pharmacist's contribution in palliative care (Akram et al. 2012; Savage et al. 2012) and has been achieved within networks in Scotland (Bennie et al.) One

pharmacist suggested the use of technology to support remote attendance. Such strategies using remote technology to allow multidisciplinary team working in palliative and end of life care are envisaged within Wales (Royal Pharmaceutical Society (Wales) 2014).

Integration with community nursing teams was also hindered for a number of reasons in this study, including a lack of knowledge of what pharmacists do and the pharmacy services they offer. Nursing staff favoured face to face relationships with GPs and pharmacists in my study, also seen in (Wilson and Seymour 2017); however, there appeared to be little opportunity to interact with community pharmacists. Geographical proximity and having face to face access to other healthcare professionals develops trust and supports an understanding of each other roles in the primary care palliative team (Wilson and Seymour 2017). Where close working relationships existed, this had enhanced care for palliative care patients, for instance, pharmacists in my study not commissioned to hold palliative care medications made arrangements to keep some palliative care stock in, and there were reports where pharmacists enabled a fast turnaround time for medications to go in a syringe driver or sufficient stock was available for over the weekend. Despite this, there appeared to be few examples of community pharmacists working with other healthcare professionals in the context of palliative care except in terms of stocking and supplying medication. There was a case where a pharmacist had worked with the local nursing team and GP practice in proactively providing education to new nursing staff and GP trainees in the pharmacy. Such schemes are likely to improve knowledge and understanding of each other's professional roles and have been suggested as a way to learn about other professions, support building personal relationships and multidisciplinary working (Micallef et al. 2017).

Nursing staff also overlooked pharmacies and pharmacists in respect to queries on medicines within my study, preferring instead to contact the GP or the specialist palliative care team. Nurses never thought of contacting the pharmacist in a professional role, though it was identified by a nurse that this

would happen for medicine issues in a personal context outside of work. This could be explained by the nurses having a lack of awareness of community pharmacist training, roles and pharmacy services or a preference for the advice of the GP in relation to palliative care issues. It could also be explained by professional isolation and a lack of a personal relationship with any pharmacist. The issue of personal trusting relationships in and between teams is cited as centrally important to achieving anticipatory prescribing by Faull et al. (2013) as well as for integrating pharmacists into primary care teams (Jorgenson et al. 2014). Previous research on contact between nurse prescribers and community pharmacists noted that more than two-fifths of community pharmacists did not have any regular contact with nurses (While et al. 2005) but this could have been related to low nurse prescribing rates in the study. The authors suggest increased contact and understanding of roles would be needed to support team working between nurses and community pharmacists. With GPs under increased pressure and a workforce crisis (NHS England 2016), they are open to letting other healthcare professionals such as district nurses and specialist palliative care teams lead on areas within palliative care potentially to the point where GPs are only observed to be involved, with the prescription of the drugs (Payne et al. 2015). Answering queries on medicines is an area where community pharmacists could get involved thereby reducing the number of queries hitting the GP practice. In Sweden, dispensing pharmacists, added to palliative care teams, have been valued for answering queries on medicines and improving medicines management (Norrström et al. 2010), and pharmacists incorporated into palliative care teams have answered queries and significantly improved nurses medication related knowledge (Hussainy et al. 2011).

Concerns raised by other healthcare professionals on sharing confidential information with the pharmacy team, a potential lack of trust and an understanding of how this information could support patient care suggests a much greater barrier to be overcome before pharmacists can be integrated into primary healthcare teams to provide more support to palliative care patients and their caregivers. This may be reflective of public trust in

pharmacy services per se making it improbable that the public will access an extended role for pharmacists in a high risk area such as palliative care without an existing trusting relationship with the community pharmacist and the support of their GP (Gidman et al. 2012). Developing relationships between cancer patients and their community pharmacist through a local 'Living with and beyond cancer' may be a positive step in the right direction providing evidence for new models of care whilst helping patient symptom management but such schemes are not universally provided at present.

Community pharmacists appear to have a limited role in palliative care due to the current infrastructure in community pharmacy that does not support an extended role in providing additional services to this group of patients. Where patients and their family caregivers are given additional pharmaceutical support by community pharmacists, this is often ad-hoc and done without remuneration as a result of the pharmacist's own motivation, skills and professionalism. Pharmacists in the study reported this was more likely to happen within pharmacies with an additional pharmacist or upskilled support staff and less likely in pharmacies with only one pharmacist where there are increased time pressures. A lack of organisational support and constraints of the pharmacists workload in undertaking MURs has been reported elsewhere (Rosenbloom and Graham 2008; Latif et al. 2011; Latif 2012). There is concern that housebound patients with a high degree of symptomatic burden may have limited access to a community pharmacist or any pharmaceutical care in the community with family caregivers often taking on the burden of managing their medicines, which can cause difficulties due to complexity in the medicines regime, concerns on giving opioids and "as required" medication (Savage et al. 2012; Payne et al. 2015). In their study of bereaved relatives, Payne et al. (2015) highlight that family carers need more information to manage medicines and suggest community pharmacists could advise on the safe management, storage and disposal of medications. A proactive approach whereby community pharmacists provide medicines information to older palliative care patients and their carers is also suggested as a way to give reassurance and advice (Bennie et al. 2013b), and is likely

to build relationships and trust between pharmacists and their customers. However, the pragmatic difficulties of how to achieve this within the current community pharmacy infrastructure without adequate processes for patient consent and remuneration to support this remain. Although community pharmacists in my study were willing to do more to support palliative care patients, they stressed such constraints as workload, time and responsible pharmacist regulations were major barriers in allowing them to undertake extended roles or to leave the pharmacy unless additional staff were available and specifically trained to take on more 'traditional' tasks.

It was suggested by other healthcare professionals in my study that community pharmacists may lack confidence in counselling palliative patients and be unfamiliar with pre-emptive medication. Furthermore, they may have difficulty in identifying a patient as 'palliative' due to a lack of access to patient clinical records and not being informed when someone is on a palliative care register by the primary care team. Both of these issues may substantially limit the pharmacists' ability to do more to support symptom management and provide a clinical service in the pharmacy. Access to patient records including read and write access to SCR has been highlighted as being critical to ensure effective communication and co-ordination across the multidisciplinary team when providing high quality, responsive palliative and end of life care (RPS England 2016). In my study pharmacists felt as if the treatment decision had already been made by the GP and nurse prior to the palliative care prescription coming to the pharmacy. Since syringe drivers could not be pre-empted and prescriptions were often presented urgently, there was no time to discuss treatment alternatives unless the prescribed choice was not available or could not be obtained. The pharmacists' reactive role in only responding on presentation of a prescription, having limited access to patient records and minimal time to have impact has already been discussed elsewhere (Rosenbloom and Graham 2008; Avery et al. 2012). Community pharmacists need to be proactive and involved earlier in the patient care pathway to improve care and utilisation of medicines, and not just at the end of the supply chain.

6.4 Integration of findings from quantitative and qualitative phases of the research

Creswell and Plano Clark (2011) state, using an explanatory sequential design, uses the qualitative results to help explain the quantitative results of the study. Using mixed methods helps provide a fuller picture of the issues and triangulate the data (Bryman 2012; Ritchie et al. 2014). The purpose of this study was to identify factors associated with a delay in supplying palliative care medicines and understand factors that facilitate or limit the community pharmacists' contribution to palliative care. In this section, I examine where two or more sources of data are in agreement or contrast with each other to help explain the quantitative results of the study.

The findings from the interviews with community pharmacists corroborated with the evidence that prescription errors, in particular, legal errors on handwritten prescriptions for CDs were very infrequent now. When legal prescription errors did occur they could often be resolved through a permitted pharmacist technical change and did not cause a significant delay in contrast to Stuart (2013) and MacRobbie et al. (2015). Interestingly, the community pharmacists interpretation of 'prescription errors' included instances where the item prescribed was not the strength or form specified on the local palliative care medicines list while such errors were classified as administrative errors within my study as the prescriptions complied with legal requirements. As with Stuart (2013), my study suggests changes to CD requirements for syringe driver prescriptions may be required or future improvements through the use of electronic transmission of prescriptions, -which are on the horizon for controlled drugs using EPS r2 (NHS Digital 2017)-may allow quicker resolution of incorrectly written prescriptions.

The number of people needing to go to more than one pharmacy as recorded in the customer survey could be explained by the poor awareness of the commissioned palliative care pharmacy service by GPs and other healthcare professionals, and the assumption by GPs that most pharmacies keep some palliative care drugs in stock; so GPs do not necessarily contact the

pharmacy in advance or direct the patient as to where to go when needing urgent medicines. This is reinforced by half of those referred to the pharmacy had to go to one or more pharmacies to access urgent palliative medications. Having the stock in the pharmacy was the main facilitator for quick access meaning pharmacies participating in the LCS monitoring stock levels or those pharmacies working in collaboration with GPs to stock a few basic palliative medicines were more likely to provide quicker access. Even though there was a lack of awareness of the CCG list of palliative care drugs in the interviews with GPs, the fact that there was a high adherence to the formulary list can be explained by embedded use of IT prompts within the SystmOne GP clinical prescribing system used in many practices.

The low number of queries and MURs recorded in the pharmacy could be explained by a lack of communication and referrals from others in the primary healthcare team regarding palliative care patients, often due to concerns on sharing confidential patient information, as expressed by the GP and nurse interviews. Furthermore, the perceived barriers to conducting additional services in this patient cohort, who may not be present in the pharmacy, was illustrated by the community pharmacists.

SCR was not used within the pharmacy data collection with the community pharmacist interviews confirming that, though SCR can be helpful in many circumstances in the pharmacy such as emergency supplies, it may not always be up to date where frequent dose changes have occurred or where there is multiplicity of prescribing, which could be the case for palliative care patients. Some pharmacists in the study explained that working in the GP practice and having access to the full patient clinical record was used in preference for palliative care queries compared to SCR. There is a concern that not having access to full clinical records or a specific dose on a syringe driver prescription means that the clinical safety check performed by community pharmacists can be jeopardised potentially putting patients at risk of inadvertent medication errors. The higher percentage of prescriptions for patients who are not regular users of the pharmacy as well as OOH

presentation make this a high risk area for community pharmacists. Having read and write access to SCR, which includes up to date letters and referrals, would give pharmacists the ability to record discussions and therapy suggestions, updating patient's medical records back through to GPs and other healthcare professionals involved in the patient's care (Andalo and Sukkar 2015). In addition, having read and write access to SCR would improve interdisciplinary working, increase the quality of care improve patient safety and support continuity of care especially OOHs (PSNC 2017).

The high proportion of medicines given by subcutaneous injection in the pharmacy data collection may be explained by the pharmacists understanding of palliative care, viewing this as end of life care, in addition to the lack of communication from others in the primary healthcare team when a patient is added to the GP palliative care register. This view was also conveyed in the interviews where pharmacists described patients as 'pre-palliative' when taking oral medicines or managing their symptoms well and being more mobile. Furthermore, other healthcare professionals questioned the pharmacists' understanding of palliative and pre-emptive prescribing.

An interesting finding from the qualitative interviews with other healthcare professionals is the lack of sharing of information with the pharmacist and pharmacy team when the evidence suggests that planning in advance and informing the pharmacy would make it more likely for pharmacy teams to keep items in stock. This would also have implications for nursing resources, patient carers who need to travel long distances by car to access medication, and potentially provide quicker symptomatic relief for patients. The need to have robust systems to share information is essential so that GPs and community nursing staff feel able to share patient confidential information securely with the pharmacist or pharmacy team, where this is lawful and necessary as part of delivering good patient centred care (NHS England 2016).

Data from both parts of the study corroborates the fact that community pharmacists currently have limited input into care of palliative care patients with the focus mostly on the supply of medicines from the pharmacy. GPs and other healthcare professionals limited understanding of the community pharmacists' professional role and the services they could provide that may be of benefit to palliative patients does not support early involvement and limits the pharmacists input. It also means they are not the preferred route when nurses have medicines queries; not utilising the pharmacist's specialist skills and knowledge. This lack of knowledge and integration was also noted by Jiwa et al. (no date). In Australia and in Scotland, development of specific services for chronic disease management and home medication reviews have allowed pharmacists to have greater input into the care of palliative care patients (Jiwa et al. 2011; Bennie et al. 2012; Jiwa no date) suggesting that external factors such as contracts and reimbursement policies can support pharmacists to have an extended role in this area.

Near the end of life, family caregivers and friends were involved in collecting medication for the patient with many of them going to a pharmacy that is not the patient's usual pharmacy. Changes in continuity of care could be explained by the urgent nature of the prescription, the chosen pharmacy being easier for the relative to reach or the fact they have been directed or referred to the pharmacy from an OOH provider, GP, a member of the nursing or specialist palliative care team or another pharmacy. This finding around referrals appears to be novel with no other reported research found in this area. Changes in continuity of care highlight the need for advanced care planning to be effective and for all healthcare professionals to be aware of the LCS so they can direct family caregivers appropriately.

6.5 Generalisability of Findings

This study was not intended to be generalisable as it was set in the specific context of a locally commissioned service in Sheffield; with a wide community pharmacy network, an active LPC, an established 24/7 day access to specialist palliative care, access to OOH and acute trust pharmacy on-call services. Organisation of palliative care and pharmacy contracts will be different in other areas, particularly rural locations, and commissioned services and networks will vary. Despite this, there may be some aspects of the study that can be compared to practice in other areas.

Participating pharmacists were highly motivated to be involved in the study, citing that the payment offered did not make a difference to their involvement, and instead offered altruistic reasons such as for their professional development, CPD, the profession of pharmacy practice or reviewing provision of services in the pharmacy. They all participated in an in-depth one to one interview lasting for approximately 51 minutes (median time of interview), providing rich data for analysis. The fact that the pharmacists were highly motivated, however, may mean it is difficult to generalise the results to other pharmacies/pharmacists that may be less motivated to be involved in palliative care or those that are run on locums or temporary staff. In this study, the researcher had difficulty recruiting enough pharmacists to take part in the pharmacy data collection with some citing insufficient palliative care prescriptions, though it was not possible to find out why other pharmacists may have refused to take part. The findings relating to pharmacy support staff may be less reliable as only pharmacists participated in the interviews.

6.6 Reflexivity

Reflexivity is stating clearly the researchers own role, and their assumptions and beliefs that could influence the research process as well as the interpretation and presentation of the results (Ritchie et al. 2014). This brings the researcher into the process and allows the reader to ascertain as to what

extent the researcher's positions and interests may have influenced the inquiry (Charmaz 2006). In this section, the researcher reflects on her own role and prior assumptions that may have led to potential sources of bias within the study and considers ways that she has tried to achieve 'objectivity' in the study.

The researcher's role as a pharmacist with previous experience in community pharmacy strengthens the study and has provided the researcher with a greater understanding of the contextual factors within the analysis. In addition, the researcher's experience in palliative, hospital and primary care enables the detail as well as the larger picture to be understood within the interpretation. Opposing this as a pharmacist working in palliative care, interviewees may fear participation due to professional power or feel that their knowledge or decision- making processes are being scrutinised, especially where decisions have been made outside of legal requirements in the patient's best interest. The potential for interviewees to modify their responses due to perceived or actual social and professional status has been recognised by Robson (2002) and Fontana et al. cited in Denzin and Lincoln (2005). This may be evident in the interviews with healthcare professionals who may provide answers reflecting how they believe they should act in any given situation rather than how they have actually acted in the past. There can also be the risk of bias due to insider knowledge of working in the research location, which was minimised by choosing to study in primary care where the researcher is not employed. A potential risk of bias may arise in the researchers approach to questions, the prompts used, the topic guide development, analysis and interpretation of the data due to clinical experience and the researcher unconsciously applying their own beliefs (Bryman 2012). This was minimised through notetaking and journal writing to ensure the researcher was able to set aside any prior assumptions as well as reflection during the transcript writing to ensure interview questions and prompts are as objective as possible. Furthermore, during data analysis, the researcher was mindful of deviant or negative cases to seek alternate

explanations to provide assurance of truth-value in the findings (Mays and Pope, 2000; Yin, 2003a; Yin 2003b).

The researcher had close supervision from two University academics with experience in postgraduate and DPharm mixed methods research as well as a workplace supervisor experienced in DPharm and qualitative methods. In addition, the researcher received training in qualitative approaches, utilising the framework method co-ordinated through NatCen (a nationally recognised trainer in this qualitative method), providing high quality training over two days. The researcher also undertook qualitative interview training at the University of Bradford over two days to build confidence in research interviewing, and ensuring objectivity in asking interview questions since this technique was quite different to previous experience in counselling patients as a healthcare professional. The researcher kept notes of supervision meetings, discussed emergent findings in the qualitative analysis, and kept a reflective diary recording thoughts during the analysis to aid reflexivity. An example of a reflexivity memo is provided in appendix S.

Further to this, the researcher had support from the University of Bradford Medicines Optimisation Research Group, which includes staff and PhD students from the School of Pharmacy and Medical Sciences and Faculty of Life Sciences who were presented with the initial emergent themes from the interviews to develop a thematic framework. This helped to refine the thematic framework further and aiding interpreting and abstraction. In the early interviews, the structure was focused on community pharmacists and their role while the interview structure was modified to incorporate healthcare professionals' views in later interviews. Due to a lack of knowledge of pharmacy services, there were more prompts given to healthcare professionals during the subsequent interviews, which could have had a bearing on the findings.

In this study, the researcher's position as a palliative care pharmacist may have provided the necessary credentials to recruit a variety of healthcare professionals to the study, which is one of the studies greatest strengths. There did not appear to be any concerns with the research process with none of the community pharmacists making changes to their interview transcript during the member checking process and no healthcare professionals requesting to check their transcript.

There was no payment to other healthcare professionals, as this was not included in the initial research design that was funded and peer-reviewed externally through a research grant. Interviews with health care professionals tended to be of shorter duration and were approximately 18.5 minutes long (median time for interview) due to time restrictions and less content to discuss. All interviewees were given the opportunity to add comments at the end of the interview on any thoughts that had arisen, and it was commented that the interview was thorough or they felt they had nothing else to add; so it appears that the time allowed was sufficient to cover all the issues from the healthcare professional's point of view. The interviews included a variety of healthcare professionals, except it was not possible to recruit a GP from the OOH service; so their views could not be incorporated and the design did not include other pharmacy support staff.

6.7 Discussion of the Strengths and Limitations of the Study

6.7.1 Research Setting

The study occurred in a single city in England, UK, with a mixture of pharmacies on high streets, within health-centres and urban locations. Sheffield has a vibrant history of innovative community pharmacy services and a range of pharmacies open for 100-hours and extended hours that provide access to palliative care medicines seven days a week between the hours of 6am and 12 midnight Mondays to Saturdays and 8am to 10pm on Sundays. Having access to a range of pharmacies that are open extended

hours could limit the generalisability of the study findings to other non-urban or remote areas with less pharmacy access.

Since the research took place in a single location, it may not be possible to generalise the findings across other areas of England or across the devolved government arrangements of the UK due to the different organisation of NHS contracted services. One interviewee who had worked outside Sheffield commented that the service was more organised in Sheffield than in other areas of England; however, another respondent reported a better experience when working in an area outside Sheffield, while another when working in a different pharmacy in Sheffield; so the location of the pharmacy and working relationships with other health care professionals may have a greater impact than the specific area. None of the respondents had worked in Scotland, where considerable work had been undertaken within community pharmacies to support access to palliative care medicines (Bennie et al. 2012; Bennie et al. 2015; MacRobbie et al. 2015); however, this was achieved with additional external funding in the context of the national Scottish pharmacy contract and a devolved government providing a different context to that in England. Information on local commissioning of palliative care access schemes from PSNC is limited and no outcome data is reported, suggesting that the commissioning of palliative care services in England may not be particularly well organised and monitored (Kings Fund 2013; PSNC 2016; Stotesbury 2016, pers. comm., 12 July). Rural areas may have more difficulty due to remoteness, lack of services and lack of pharmacy access (Carney and MacRobbie 2008; Bennie et al. 2013).

Sheffield pharmacists have been working in local surgeries as part of the GP Access Fund (formerly the Prime Minister's Challenge Fund) pilot in Sheffield (Primary Care Sheffield (PCS) 2016). This may have supported further joint working through building trust, communication, interdependence and providing role definition, all of which are required for collaborative working (Bardet et al. 2015). Since this pilot is not universally available, this may limit the application to other areas not involved in such schemes. On the other

hand NHS England is investing in clinical pharmacists to work in GP practices, which could support more joint working with local community pharmacies and will cover a larger number of GP practices (NHS England 2017b).

During the study period, the government announced cuts to the community pharmacy budget and it was reported that nationally up to 3000 pharmacies could close as a result (Mundasad 2016: BBC News). Due to the timing of the study and the government announcement, it is likely that feelings relating to remuneration and fees were heightened by participating pharmacists in the study, especially those working as independent contractors. This could have had an impact on the pharmacists' attitudes and perspectives to taking on roles that are additional or not-remunerated that could have come to light in the interviews.

During the period of interviews, the local GP OOH provider was initiating a 'just in case' box to provide access to a limited range of palliative care medicines during OOH visits. Palliative care medicines for the GP OOH provider had previously been supplied from the acute hospital pharmacy through contacting the on-call pharmacist. However, since the GP collaborative palliative care medicines scheme was not introduced until after the data collection, it is unlikely to have had any impact on the study findings. The impact following introduction of the 'just in case' boxes is unclear but it is possible that it may reduce the number of GP OOH prescriptions and inter-pharmacy referrals; however, no published data is available as yet.

When questioned on their reasons for taking part in the study the pharmacists expressed altruistic reasons suggesting they were keen and motivated to advance pharmacy practice. The likely consequence is that the participating pharmacists may have been more innovative in delivering services, interested in research and undertaking relevant education and training programmes than other pharmacists not participating in the study.

Evidence of this includes some of the community pharmacists working in GP surgeries, completing further education and two pharmacists in the study working with local surgeries to develop their own list of palliative care medicines. This is a strength of the study but also a limitation since findings are not transferable to other pharmacists and locations.

6.7.2 Sampling

Recruitment of community pharmacies willing to take part in the study was low, meaning it was not possible to apply a sampling strategy to either the Phase 1 data collection or subsequently within the purposive sample for the Phase 2 pharmacist interviews. This is a limitation of the study; nevertheless the pharmacies that did take part were diverse in their nature including large multiples, independent and small chain pharmacies in high street and urban locations. Both those pharmacies participating, as well as those not participating in a LCS providing access to palliative care medicines, were included helping to draw out contrasting experiences between pharmacists in these situations.

It was remarked by two pharmacists choosing not to take part in the study, that there was a low level of palliative care prescriptions at their respective non-LCS pharmacies that would make it difficult to take part in the research. This appeared to be true as the sample of palliative care prescriptions achieved in Phase 1 was much lower than that expected in comparison to a previous pilot study done by Tsoneva (2011) and prevalence data calculated from HSCIC primary care prescription data. Furthermore, the combination of a lack of pharmacy participants and prescription data meant there was an insufficient sample of prescription observations for the intended statistical analysis. Further to this, the observed prevalence of legal and other errors on prescriptions was much lower than expected and reported in other studies. It was therefore not possible to establish whether errors varied according to practice or prescriber status due to the small sample size. Though both my study and a study by Stuart (2013) had similar rates of handwritten prescriptions, they had very different error rates with no evidence that

handwritten prescriptions had more legal errors in my study compared to computer generated prescriptions. There may be important differences and processes that we can learn from and share with others in particular OOH prescribers that could provide more timely and efficient care.

Within the qualitative study, sixteen healthcare professionals were interviewed; face to face including community pharmacists, GPs, community nursing staff, palliative care team members and a member of the intermediate care team. Recruitment of community nursing staff was from two teams in the city. The sample was varied and included a nurse prescriber but did not directly cover the views of OOH GPs, locum GPs, locum community pharmacists or pharmacy support staff. Many of the interviewees responded to take part as they knew of the researcher or were interested in the research topic as there was no payment for the time involved. This may have resulted in bias in the research sample.

6.8 Summary of the chapter

In this chapter, the results and findings from each of the study components has been discussed before the findings were integrated and examined. In the next chapter, the conclusions will be stated with implications for practice and research.

Chapter 7: Conclusion

This chapter pulls together conclusions from the research and considers the implications for local and national practice. Following this, recommendations are made for commissioners and providers of palliative care medicines access schemes before finally considering future work and further research arising from this study.

7.1 Conclusions from own research

There was little evidence that prescription errors affected timely access to palliative care medicines; however, having the necessary medicines available in advance of the prescription was critical to allow pharmacies to respond quickly to meet patient and customer needs.

Pharmacies achieved this in a variety of ways:

- By participating in a LCS to access palliative medicines and regularly monitoring stock levels in the pharmacy.
- Working collaboratively with local GPs to keep a list of palliative medicines in the pharmacy.
- Requesting patients ring in advance to order non-urgent regular medicines including CDs.
- Making phone calls to refer customers to an alternative pharmacy if the requested items were not available or could not be ordered in time.

Pharmacies encountered a number of barriers to this process, namely:

- Unexpected prescription presentation with no communication to the pharmacy in advance. This could mean stock was not ordered or insufficient stock was available.
- Prescription arrives for a non-formulary, unlicensed or expensive product including specialist palliative care team prescriptions not stocked in the pharmacy.

- National drug shortages for a number of palliative care product lines.
- Errors on CD prescriptions for drugs to be administered via a syringe driver, and other prescribing errors.
- Difficulties checking safety of medication on prescriptions due to a lack of clinical information and because not all prescriptions specify a dose.
- Changes to continuity of care between patient's regular pharmacy and the pharmacy that provides access to urgent palliative medicines or is convenient to the customer. This may make it difficult to respond to the patient or carers needs.

There were, however, facilitators to accessing palliative care medicines:

- Skills of nurses and specialist palliative care team who were resourceful in their use of drugs, monitored stocks in the patient's home and informed pharmacy to mind their stock levels for patients requiring pre-emptive or syringe driver medicines.
- Pharmacists working with GP practices who have an agreement to keep some palliative care medicines in the pharmacy.
- Prescribing template on GP clinical prescribing system for pre-emptive medication.
- GP rings or contacts the pharmacy prior to prescribing to allow them to order necessary medications in. Knowledge of local pharmacies participating in the LCS.
- Forward planning by primary healthcare team

In terms of the community pharmacists' role in palliative care this was currently limited to a traditional supply of medicines, often in urgent and or difficult situations. Other healthcare professionals were reluctant to share confidential information with the pharmacy team until the point that a prescription was or had been written for pre-emptive medication giving little time for the patient's regular pharmacy to order medication in or for the pharmacist to be proactive in their discussions. Patient benefit will only be realised when pharmacists are fully engaged within the primary care team.

Health professionals need to feel able to appropriately share clinical information with the pharmacy team to support patient care, and pharmacists need to have read and write access to the patient's clinical record through SCR. This is likely to improve access to care, support continuity of care, and the patient and carers' experience.

Likewise community pharmacists' knowledge of medicines is not utilised and opportunities to collaborate in the primary care team are lost. This could result in needless calls to the GP or specialist palliative care team. Increased integration between pharmacy and nursing teams could help resolve medicines queries, reduce professional tension when trying to access urgent palliative care medicines, and improve awareness of local pharmacy services that could benefit patients in the nurses' caseload. Improving personal relationships and collaboration through joint working and training events would enable better integration across the primary healthcare team.

Customers reported a high level of satisfaction with pharmacy services at a difficult time, suggesting pharmacies are responsive to patient and customer's needs. However, limited interventions took place and they appeared to be pharmacist-lead, suggesting there were few opportunities for patients and carers to discuss medications and little interaction with other members of the primary care team. Though pharmacists were willing to do more for palliative patients and carers they cited familiar obstacles. There is a risk that without a cultural shift, medicines will not be optimised for patient benefit, symptoms will not be managed and there will be an increase in referrals to the specialist palliative care team. This will lead to poor access for more complex patients and ultimately an increase in hospital admissions. The pharmacy contract, remuneration and processes need to support a patient centred approach during the day and within OOH episodes of care. This could be through community pharmacists having read and write access to SCR but also informed patient consent to allow family carer involvement. There is an urgent need to assess new models of working using remote

access and pharmacists linked to community palliative care teams to assess patient benefit.

7.2 Implications for Practice

In practice, there appears to be little information on commissioned services for accessing palliative care medicines, including a lack of national quality and outcome data. Data systems that capture outcomes could help benchmark practice and share learning across commissioning organisations. This could include: nearest access point for end of life medications; time to access urgent palliative medications; time elapsed from decision to administer to starting a syringe driver; percentage use of local formulary; patients with advanced decisions in place who achieve this etc. Benchmarking performance will support commissioners as part of monitoring the LCS and can be incorporated into standard NHS contracts specifying the outcomes to be monitored, local audits, and electronic software for analysis and reporting.

Locally the CCG needs to review the service specification and the pharmacies providing the LCS. There was some evidence in the study to suggest an enhanced list for accessing specialist palliative care medicines may be required to meet the needs of complex patients in the community. This should be assessed through the Pharmaceutical Health Needs Assessment, planned and commissioned appropriately. The LCS must be monitored, and disseminated to all providers including adult emergency and OOH providers, health professionals, palliative care teams, intermediate care teams, GP, and pharmacy contractors to inform them of where the specific drugs can be accessed. Wherever possible the medication list needs to be integrated into GP clinical prescribing systems to ensure the correct product and strength is prescribed. All pharmacies should be encouraged to work with local GP practices to support access to palliative care medicines potentially keeping a few basic palliative care medicines in stock. Commissioning bodies should consider whether they can contract or reimburse such pharmacies not part of the formal LCS for any expired stock.

Although end of life prescriptions in community pharmacies were often urgent they were also very infrequent so pharmacies do not see this as a large part of their workload. There is a concern that contracts for palliative care medicines are a burden on contractors and 'disproportionate to services being provided' (Murray 2016: 29). Obtaining prompt supplies of urgent medications near the end of life should follow access pathways for healthcare professionals attending to the medicines administration. Commissioners should work with urgent and OOH providers to ensure access is meeting local needs; considering alternate mechanisms through rapid response, OOH, Accident and Emergency (A&E) or other emergency providers.

Where a commissioned service exists nationally, information needs to be disseminated and readily available to all healthcare professionals involved in the care of palliative patients. This could be through the NHS choices website. Locally commissioned services should be reviewed and updated to standard NHS contracts with consideration for different levels of service so that more pharmacies provide access to a smaller range of palliative drugs. This could include standardised options during intermittent stock shortages. Clarification on where to access urgent palliative care medicines needs to be available across organisational boundaries and to all healthcare professionals including GP locums and all pharmacy staff. Commissioned services must be monitored to assess the patient and carers' experience and to ensure palliative care medicines are available.

Increased complexity together with patients living longer with co-morbid conditions will expand the need for palliative and end of life care in the community. With this, there will be a greater need for healthcare services and professionals to provide coordinated and collaborative patient-centred care. Patients and carers view access to healthcare services; including health professionals as paramount together with coordinated and continuity of care (Sav et al. 2015). But in the event of no access, efforts to provide "patient-centred" care are meaningless (Sav et al. 2015). With what is an already over-stretched GP and community nurse workload, it is even more crucial for

healthcare professionals including pharmacists to work collaboratively, to support access for patients and families near the end of life. Organisational barriers must be overcome to improve capacity, reduce inefficiencies, and utilise skills of all team members. Guaranteeing good symptom management towards the end of life ensures a positive experience for families and carers and a 'good death' for their loved one, leaving a lasting legacy and minimising impact on their lives. Timely access to medication is part of effective symptom management, and can be achieved by advanced care planning, and a collaborative approach, utilising the skills of all team members. Community pharmacists working with GP practices and community nursing can support continuity of care, and further integration of pharmacists in GP practices will help in this respect.

Complex patients including those who are housebound with cancer, on continuous oxygen, suffering from breathlessness or fatigue may be unable to access pharmacy services. Family caregivers often manage the patient's medication but may lack support and have their own concerns about administering opioids and other medicines near the end of life (Joyce et al. 2014; Sheehy-Skeffington et al. 2014; Payne et al. 2015; Archer et al. 2017) Though a plethora of issues were reported by community healthcare staff it is unlikely an MUR will address these concerns especially as there is no QOL measurement within the MUR service (Wright 2016), and because a payment based on targets and volume does not provide an incentive to provide the service to complex patients in their homes (Wright 2016). Following the Murray (2016) review, NHS England will review the nationally contracted MUR community pharmacy service. Consideration needs to be given on how patients with complex conditions in the last year of life access pharmaceutical support. This could be through providing support to family caregivers, through GP clinical pharmacists or domiciliary pharmacy teams. There could also be a role for tele-medicine to allow remote monitoring by multi-disciplinary teams including specialist pharmacists. Such technology is being piloted and NHS Vanguard sites may provide the vision of how this will work in future.

Electronic transmission of controlled drug prescriptions may improve timeliness of accessing medication; however, this is still to be proved in the case of controlled drugs. Having a means of transferring electronic prescriptions within a patient's house could reduce the need for OOH handwritten prescriptions; however, the researcher is not aware if the technology is being developed in this area since local OOH teams have instigated 'just in case' boxes relieving the need for an FP10. Electronic prescriptions and technological advances will improve access to prescriptions and provide a vehicle for remote clinical services if community pharmacies seize the opportunities to implement these in future.

Accessing dedicated specialist pharmacist input within community palliative care teams would provide support for answering specialist queries as well as providing specialist support for individual patients and their family caregivers, GPs and community nursing teams. Specialist pharmacists could also support training and education of community teams including pharmacy support staff. A vision of such a service is provided by RPS Wales (2016) and NHS Vanguard sites (NHS England 2016), which could be rolled out more widely with technological developments. Integration of pharmacists into community palliative care and ambulatory teams has been achieved in Australia, US and the UK (Atayee et al. 2008; Hussainy et al. 2011; Bartlett 2017: pers. comm., 21 September). However, such schemes are not reimbursable, there is limited productivity data; and are not widely available (Walker 2010). It is unlikely that current hospice or oncology pharmacists could take on this additional role since staff resources are already stretched, and the pharmacists' clinical time is dictated by their employer with the additional services outlined above not being paid for. There may be a role for charitable organisations, large multiple pharmacies and primary care pharmacist organisations to support this, in addition to the use of remote technologies. A successful model supporting increased community pharmacy participation was implemented in Scotland using additional funding (Bennie et al. 2012; MacRobbie et al. 2015) and could be considered in England.

Controlled drug regulations are required to protect the safety of the public; however, they should not prove to be a barrier where a healthcare professional is assured of the legitimacy of a prescription and appropriateness for the patient. Where a specific dose on prescriptions for medication to be given subcutaneously via syringe driver is not provided, this could be allowed under a permitted technical change by a registered pharmacist according to the prescriber's intention. Providing a template on GP clinical systems would also support any unintentional illegality. As local lists of medications may vary across organisational boundaries, CCG teams would be responsible for instigating and maintaining the template.

Further consideration should be given to streamline processes between teams and across organisational boundaries, for instance, duplication of medicines reconciliation processes between GP and specialist palliative care teams. Informal communication methods should be encouraged including telephone, NHS mail and secure messaging services to advise pharmacies in advance to order CD medications or likely quantities needed for a syringe driver over a weekend. Electronic processes will help improve efficiency; yet often access to IT systems is not shared across teams including those outside the NHS in hospices. Further to this, there needs to be a systematic way of sharing information with community pharmacists and other pharmacy professionals where patients give consent. This could include whether a patient is palliative or under a palliative care team and previous letters advising on dose changes to medication. Having read and write access to SCR could be developed in addition to providing access to Electronic Palliative Care Coordination Systems (EPaCCS). Community pharmacists cannot currently access these records; however, IT developments in this area could allow access in the future. Having read and write access to SCR could allow community pharmacists to align quantities on prescriptions with the patients consent and indicate medications on repeat that are no longer needed. In addition, pharmacists could check on the safety and appropriateness of an opioid dose, especially for patients who do not usually attend the pharmacy or when relatives or neighbours are involved with

collecting prescriptions. This would potentially allow the pharmacist to deal with any queries without needing to contact the prescriber, providing safe and timely access particularly outside surgery hours.

Capacity in community pharmacy could be increased through additional education to pharmacy support staff including: identifying palliative care prescriptions; understanding the urgency; signposting to local services; dealing with prescription queries and resolving stock issues. Pharmacies offer the opportunity to support a wide range of patients and carers who may not be known to palliative care teams. Ensuring community pharmacies are aware of local services and support including those for non-cancerous life-limiting conditions will enhance the support they provide to patients, families and carers.

Some pharmacists within the study had independent prescribing status; however, there was no evidence of this being used in the area of palliative care. Independent prescribers, with the right governance framework, could validate changes in prescriptions to formulary choices, or suitable alternatives where national stock shortages are a problem. It would be necessary for such pharmacists to have read and write access to the patient's SCR to undertake this process and be able to recharge prescribing to the practice budget.

7.3 Recommendations for Healthcare Professionals

Several recommendations for healthcare professionals have arisen from this study as described further below.

Healthcare professionals need to be encouraged to share information with community pharmacists where this would support or enhance patient care towards the end of life. This could include seeking advice on medication issues, referral for medication concordance support and advising when

someone is palliative to ensure end of life medicines are ordered in advance of need.

GPs should work proactively with local community pharmacists on establishing services that may be beneficial to their palliative care patients such as use of repeat dispensing schemes and EPS. GPs should ensure they are aware of local services such as pharmacy opening hours and delivery services and any restrictions on these; so they can inform patients accordingly.

GPs should be encouraged to work with local pharmacies to establish what necessary stock of urgent palliative care medications should be kept where possible for pharmacies not on the CCG LCS list.

7.4 Recommendations for Providers and Organisations

Pharmacies, pharmacy companies and pharmacy organisations should be encouraged to provide more information to healthcare professionals and the public on the range of services provided, and any rules or restrictions on these through awareness campaigns, briefings to nursing team leaders and joint events. A national campaign on nationally contracted services would support awareness of pharmacy services, especially if there are any changes following the NHS England review (Murray 2016). Further consideration should be given to supporting pharmacy teams to provide work shadowing and work experience to newly qualified nurses and GPs in training.

Consideration needs to be given of how to engage all of the community pharmacy team, including support staff, locums and reliefs in education in palliative care so all pharmacy staff know about anticipatory medication and can assess prescriptions for urgency of supply. Providing face to face training would be preferable to ensure pharmacy support staff are able to liaise with families, source medication and make referrals. The LPC could have a role to ensure this learning is rolled out and available to all pharmacies. Specific

training on syringe drivers should be provided for pharmacists involved in a specialist LCS.

Specialist palliative care and acute hospital provider organisations should consider running joint educational events for community nursing, GP and pharmacy teams to encourage learning, sharing practice and the development of local networks. This could include local audit, research, and educational events.

Organisations, providers and professional groups need to collaborate and integrate learning to support increased complexity of palliative care patients and prevent unnecessary hospital admissions. This could be through the use of modern technology, and learning from NHS England Vanguard and technology transformation sites.

7.5 Recommendations for Local Commissioners

Local commissioners need to plan, commission and monitor co-ordinated services that provide timely responsive palliative care medication at all hours of the day, seven days a week. This cannot be assessed in isolation but as part of commissioning palliative and end of life service provision as a whole as well as access to urgent medicines within an appropriate environment. Commissioning a scheme that provides urgent access with the facility to administer the medication may be more appropriate in some cases and this could be achieved through OOH providers or rapid response teams visiting palliative patients at home, reducing the need to access urgent medicines through community pharmacies. Faster and more responsive access provides relief from pain and other symptoms in pre-terminal patients who have not been identified in advance, or were not suitable for pre-emptive medication and wish to remain in the home environment. Community pharmacy services could also be commissioned to ensure access to non-urgent, pre-emptive and continuation of syringe driver medication in less urgent situations.

Commissioners should consider whether a locally commissioned service could be offered more widely to incorporate all pharmacies willing to hold a small number of core medicines for symptom management control at the end of life to ensure prompt access and continuity of care. The commissioned service could include payment for expired medications as well as delivery charges that could be waived for delivery at the end of life. Different levels of service could be offered for a smaller set of core drugs or a wider set of more specialist medications. Due to the volume and prevalence of prescriptions for subcutaneous medicines at the end of life, as witnessed in this study, it is unlikely that a volume commissioned model would be cost-effective and commissioning contracts need to be non-burdensome for small contractors to ensure efficiency in the contracting process. This could be achieved through having a national standard framework for commissioning a local service.

Commissioners of LCS need to review and maintain schemes in line with current and future needs to enhance care in the community. Commissioners should consider whether there is a need to hold specialist medications in one or more pharmacy hubs to allow more complex patients to be supported in the community by the specialist palliative care team. Formally commissioning such a scheme will ensure any scheme is co-ordinated with information sent to healthcare professionals and the public, if necessary, to advise them of the arrangements as well as follow due process and fairness.

The list of core medicines should be reviewed and agreed with commissioners, and disseminated widely to ensure it is available to all those involved in palliative care services including prescribers and anyone advising on palliative care medication in the last days of life. CCG medicines management teams and GP practices should consider how to embed this list of core medications, including dosages and frequencies within GP prescribing systems to ensure this is the default chosen when issuing computer generated prescriptions. Consideration should be given to having alternative products in case of national shortages in palliative care medicines.

Commissioners should consider whether a citywide electronic bulletin could be used to disseminate information on those pharmacies holding palliative medicines and any issues with stock availability to all healthcare professionals. This would require email addresses for community pharmacies, GP practices as well as specialist palliative care and community nursing team leaders who work across a number of different organisations. Alternatively, information could be included on the CCG palliative care website, and organisations requested to send a link to staff and contractors when any changes in supply are published.

7.6 Dissemination of findings and recommendations

Details of external outputs from this research are provided on page iv - v at the front of the thesis. This includes presentations at the Royal Society of Medicine/ Marie Curie Research Conference and at the University of Bradford Faculty of Life Sciences open days. Poster and oral presentations have been presented at the RPS Winter Summit, the Association of Palliative Medicine Palliative Care Congress and the Health Services Research and Pharmacy Practice (HSRPP) conference. Due to limited research in this area and to reach a wider international audience as well as meet the requirements of the DPharm a publication has been prepared for submission to a peer-reviewed journal in 2018.

The researcher has completed research presentations to disseminate findings to the University of Bradford MORG, STH Foundation Trust pharmacy research training events, and St Luke's Hospice Clinical Development Group.

As part of the external funding provided by PRUK, the researcher has completed six and twelve month progress reports and a final report on the research. Details of the research have been entered onto *Researchfish*® an online facility to track study impact and outcomes in relation to research funding (Research Councils UK 2014).

Findings and recommendations from the research will be discussed with a service user panel at the hospice, where the researcher works, to ascertain what, if any, changes should be taken forward that are likely to have a positive impact. The researcher will support patient co-production of service development or changes where possible, so these are structured around patients' needs and preferences. Following this, a report of recommendations and key deliverables will be presented to the Sheffield CCG end of life planning group, LPC, local professional and palliative care networks. There will also be consideration of sharing a report and learning with wider local commissioners through the local Sustainability and Transformation Plan across South Yorkshire and Bassetlaw. Reports will also be shared with national bodies, including the Association of Supportive and Palliative Care Pharmacy (ASPCP) and affiliated partners of the RPS. The ASPCP includes pharmacists and pharmacy technicians interested or working in the field of palliative care, who could assist in sharing results across a wider network, including the devolved governments of the UK and NHS commissioners. Further electronic means of dissemination will be utilised including ASPCP website, twitter, and *Researchgate.* Study participants will also be issued with a copy of the research report if this has been requested on their consent form.

7.6.1 Implications for future research

This study highlights areas where further research should be undertaken to ensure timely access to palliative care medicines in the community and the community pharmacists' role in palliative care. Research priorities have been highlighted within the thesis but are summarised further in this section.

The implication of electronic prescription transfer on timely access to palliative care medicines could not be assessed within the current study since EPS release 2 roll out did not include CDs. It is likely that EPSr2 will improve efficiency and timeliness in accessing medicines particularly CDs at the end of life, though it could have the opposite effect if the nominated

pharmacy does not keep the requested items in stock. It would be prudent to review if EPS r2 has the desired effect in this area of practice.

Further research is needed to investigate referrals from OOH providers and processes for obtaining access to urgent palliative care medication in the OOHs period. Schemes offering urgent access through GP OOH providers, Accident and Emergency (A&E) or rapid response teams should be piloted to assess and evaluate the benefit of these models for timely symptom management compared to community pharmacies. These models may not be suitable for more rural locations with less demand or limited access to seven-day palliative care services.

Further local research on the way customers access pharmacies near the end of life should be investigated to examine whether this is customer choice or a consequence of the way the LCS is provided. Change in use may have implications for continuity of care.

Benchmarking outcomes of local schemes and access points is needed across the UK to support planning and commissioning of services. This will enable commissioners to monitor the use and impact of locally enhanced or commissioned services, whether they meet customers' needs, and whether they provide value for money in keeping people out of hospital.

Supporting community pharmacists to provide symptom management, psychological support, treatments and signposting in cancer patients seems worthy of further research. There may be scope to support a wider range of patients and non-cancerous conditions in future ensuring equity of access. Further research on the community pharmacy team involvement in supportive care, for those on a 'living with and beyond cancer programme,' should be undertaken to assess whether pharmacies provide a useful outlet for such integrated services.

A further area of research is how community pharmacists can develop and support collaborative, trusting relationships between themselves, the public and members of the primary care team since any future extended role for community pharmacists relies on these human relationships. This is in the context of new technologies, commercial pressures and the political and regulatory environment within pharmacy.

7.7 Final Conclusion

The findings from this study raise questions on whether community pharmacists can have an extended role within palliative care due to a variety of limitations, including the national NHS pharmaceutical contract in England, the endemic absence of sharing information on palliative care patients with between GPs and community nurses with pharmacy professionals, the need for employers to provide sufficiently upskilled pharmacy support staff to allow pharmacists to take on extended roles in the context of pharmacy cuts, and because pharmacists are not fully integrated within the primary care team. It is unclear whether a similar model as used in Scotland (Bennie et al. 2012), would be feasible within the fiscal constraints and the higher head of population for pharmacies in England.

Timely access to palliative medicines at the end of life has to be supported through effective planning and commissioning to consider the best models of care, and this must be communicated to all healthcare professionals, healthcare managers and OOH providers.

Health professionals, provider organisations, acute trusts, voluntary sector and private organisations must work together with local and national leaders, and local communities to overcome these obstacles through effective use of modern technology, providing safe and secure access to patient information, and providing local pathways of care that are monitored and managed to ensure effective outcomes for palliative care patients and their carers.

References

Addington-Hall, J. M. (2007) *Research methods in palliative care.* Oxford: Oxford University Press.

Akram, G. Bennie, M. McKellar, S. Michels, S. Hudson, S. and Trundle, J. (2012) Effective delivery of pharmaceutical palliative care: challenges in the community pharmacy setting. *Journal Of Palliative Medicine* 15 (3), 317-321.

Alton, S. (2015) *Developing a multidisciplinary medicines related model of working.* [report]: NICE. *https://www.nice.org.uk/sharedlearning/developing-a-multidisciplinary-medicines-related-model-of-working*. Accessed 22 September 2017.

Amass, C. (2006) The gold standards framework for palliative care in the community. *Pharmaceutical Journal* 276 (7393), 353-354.

Ammenwerth, E. Schnell-Inderst, P. Machan, C. and Siebert, U. (2008) The effect of electronic prescribing on medication errors and adverse drug events: a systematic review. *Journal of the American Medical Information Association* 15 (5), 585-600.

Andalo, D. and Sukkar, E. (2015) Risks and benefits of pharmacists accessing patients' summary care records. *Pharmaceutical Journal* 275 (7870), Accessed 22 September 2017.

Andrews, N. and Seymour, J. (2011) Factors influencing the referral of non-cancer patients to community specialist palliative care nurses. *International Journal of Palliative Nursing* 17 (1), 35-41.

Archer, W. Latif, A. and Faull, C. (2017) Communicating with palliative care patients nearing the end of life, their families and carers. *Pharmaceutical Journal* 298 (7897). Accessed 27 January 2017.

Armstrong, P. (2017) *Email to L. Miller about Northern Ireland community pharmacy palliative care* [personal communication] 15 March.

ASHP (2002) ASHP statement on the pharmacist's role in hospice and palliative care. *American Journal of Health-System Pharmacy (USA)* 59 (Apr), 1770-1773.

Aslett, M. and Wall-Hayes, L. (2015) *Access to palliative drugs - community pharmacy scheme - audit 2015.* Birmingham: NHS Birmingham.

Atayee, R. S. Best, B. M. and Daniels, C. E. (2008) Development of an ambulatory palliative care pharmacist practice. *Journal Of Palliative Medicine* 11 (8), 1077-1082.

Austwick, E. and Brooks, D. (2003) The role of the pharmacist as a member of the palliative care team. *Progress in Palliative Care* 11 (6), 315.

Avery, T. Barber, N. Ghaleb, M. Franklin, B. Armstrong, S. Crowe, S. Dhillon, S. Freyer, A. Howard, R. Pezzolesi, C. Serumaga, B. Swanwick, G. and Talabi, O. (2012) *Investigating the prevalence and causes of prescribing errors in general practice: The PRACtICe study (PRevalence And Causes of rescribing errors in general practiCe).* [A report for the GMC]. General Medical Council. *http://www.gmc-uk.org/Investigating_the_prevalence_and_causes_of_prescribing_errors_in_general_practice___The_PRACtICe_study_Report_May_2012_48605085.pdf* Accessed 16 September 2017.

Ballinger, C. (2004) Writing Up Rigour: Representing and evaluating good scholarship in qualitative research. *The British Journal of Occupational Therapy* 67 (12), 540-546.

Bardet, J. D. Vo, T. H. Bedouch, P. and Allenet, B. (2015) Physicians and community pharmacists collaboration in primary care: A review of specific models. *Research in Social Administrative Pharmacy* 11 (5), 602-22.

Bartlett, J. (2017) *Email to L. Miller on Community Palliative Care Pharmacists.* [Personal communication] 21 September.

Bennett, M. I. Closs, S. J. and Chatwin, J. (2009) Cancer pain management at home (I): do older patients experience less effective management than younger patients? *Supportive Care In Cancer* 17 (7), 787-792.

Bennie, M. Akram, G. Corcoran, E. Maxwell, D. Trundle, J. Afzal, N. Mackay, C. McGregor, A. Menzies, K. and Andrews, C. (2012) *Macmillan Pharmacist Facilitator Project final evaluation report – 2012.* Scotland: University of Strathclyde. *http://www.palliativecareggc.org.uk/wp-content/uploads/2013/10/Macmillan-Full-Report-31012012-FINAL.pdf* Accessed 15 September 2017.

Bennie, M. Akram, G. Corcoran, E. McCusker, C. Afzal, N. Bee, L. Brown, P. Mcgowan, A. Mcmillan, A. Pettigrew, C. Reynolds, S. and Stuart, J. (2015) *Macmillan Pharmacy Service 2015 - Evaluation of impact of community pharmacy palliative care training programme.* Scotland: University of Strathclyde. *https://pure.strath.ac.uk/portal/files/54529489/Bennie_etal_2015_impact_of_community_pharmacy_palliative_care_training_programme.pdf* Accessed 26 September 2017.

Bennie, M. Akram, G. Corcoran, E. Trundle, J. Afzal, N. Mackay, C. McGregor, A. Menzies, K. Andrews, C. Brown, P. Miller, J. and Stuart, J. (2013a) *Macmillan Pharmacist Facilitator Project year 3 (2012) final report.* Scotland: University of Strathclyde. *http://www.palliativecareggc.org.uk/wp-content/uploads/2013/10/MacmillanPharmacistFacilitatorProjectYear3_Report_final-with-execsummary010213.pdf* Accessed 16 September 2017.

Bennie, M. Dunlop Corocoran, E. Trundle, J. Mackay, C. and Akram, G. (2013b) How community pharmacists could improve their role as

providers of medicines information. *European Journal of Palliative Care* 20 (4), 188-91.

Bennie, M. Hudson, S. Akram, G. McKellar, S. Michels, S. Trundle, J. Afzal, N. Mackay, C. McGregor, A. Menzies, K. and Andrews, C. (2010) *Macmillan Pharmacist Facilitator Project six month baseline report.* Scotland: University of Strathclyde. *http://www.palliativecareggc.org.uk/wp-content/uploads/2013/10/Macmillan-Report-FINAL-04-11-2010sh2MB-2.pdf* Accessed 15 September 2017.

Bennie, M. MacRobbie, A. Akram, G. Newham, R. Corcoran, E. D. and Harrington, G. (2013) *Macmillan Rural Palliative Care Pharmacist Practitioner Project: Mapping of the current Service and Quality Improvement Plan.* Scotland: University of Strathclyde. *https://pure.strath.ac.uk/portal/files/46125884/MacRobbie_etal_2013_Macmillan_rural_palliative_care_pharmacist_practitioner_project_mapping_of_the_current_service.pdf* Accessed 24 September 2017.

Bhatnagar, S. and Gupta, M. (2015) Future of Palliative Medicine. *Indian Journal of Palliative Care* 21 (1), 95-104.

Blenkinsopp, A. Celino, G. Bond, C. and Inch, J. (2007) Medicines use reviews the first year of a new community pharmacy service. *The Pharmaceutical Journal* 278, 218-223.

Blondal, A. B. Jonsson, J. S. Sporrong, S. K. and Almarsdottir, A. B. (2017) General practitioners' perceptions of the current status and pharmacists' contribution to primary care in Iceland. *International Journal of Clinical Pharmacy* 39 (4), 945-952.

Blumer, H. (1956) Sociological Analysis and the "Variable". *American Sociological Review* 21 (6), 683-690.

Bond, C. Blenkinsopp, A. Inch, J. Celino, G. and Gray, N. (2008) *The effect of the new community pharmacy contract on the community pharmacy*

workforce. [Research report]. London: Pharmacy Practice Research Trust. *https://pharmacyresearchuk.org/wp-content/uploads/2012/11/National_evaluation_of_the_new_pharmacy_contract.pdf* Accessed 26 September 2017.

Borgsteede, S. D. Rhodius, C. A. De Smet, P. A. G. M. Pasman, H. R. W. Onwuteaka-Philipsen, B. D. and Rurup, M. L. (2011) The use of opioids at the end of life: knowledge level of pharmacists and cooperation with physicians. *European Journal Of Clinical Pharmacology* 67 (1), 79-89.

Bradley, F. Elvey, R. Ashcroft, D. M. Hassell, K. Kendall, J. Sibbald, B. and Noyce, P. (2008) The challenge of integrating community pharmacists into the primary health care team: A case study of local pharmaceutical services (LPS) pilots and interprofessional collaboration. *Journal of Interprofessional Care* 22 (4), 387-398.

Bryman, A. (2012) *Social research methods.* 4th edition*.* Oxford: Oxford University Press.

Bunn, R. (2017) *Email to L. Miller about community pharmacy access scheme.* [personal communication] 8 March.

Buntzel, J. Buntzel, H. Micke, O. Kisters, K. Bruns, F. Glatzel, M. Mucke, R. Schafer, U. and Schonekaes, K. G. (2011) Complementary and alternative medicine (CAM) use in terminally ill patients. *Trace Elements and Electrolytes* 28 (1), 49-51.

Bush, J. Langley, C. A. and Wilson, K. A. (2009) The corporatization of community pharmacy: Implications for service provision, the public health function, and pharmacy's claims to professional status in the United Kingdom. *Research in Social and Administrative Pharmacy* 5 (4), 305-318.

Carney, J. and MacRobbie, A. (2008) *Analysis of 'Just in Case'anticipatory prescribing pilot.* [report]. Inverness: NHS Highland.

Cash, A. (2016) *Health and care in South Yorkshire and Bassetlaw Sustainability and Transformation Plan.* South Yorkshire and Bassetlaw Commissioners Working Together. *http://www.southwestyorkshire.nhs.uk/quality-innovation/sustainability-transformation-plans-stps/south-yorkshire-bassetlaw-stp/* Accessed 29th September 2017.

Charmaz, K. (2006) *Constructing grounded theory: a practical guide through qualitative analysis.* London: Sage.

Cicourel, A. V. (1982) Interviews, Surveys, and the Problem of Ecological Validity. *The American Sociologist* 17 (1), 11-20.

Clifford, C. Thomas, K. and Armstrong-Wilson, J. (2016) Going for Gold: the gold standards framework programme and accreditation in primary care. *End of Life Journal* 6 (e000028).

Community Pharmacy Sheffield (CPS) (2016) *CPS Annual Report 2015/16.* Sheffied: *https://www.sheffield.gov.uk/content/dam/sheffield/docs/public-health/publichealthstrategyandreports/Pharmaceutical%20Needs%20Assessment%202015.pdf* Accessed 17 September 2017.

Community Pharmacy Sheffield (CPS) (2017) *CCG Locally Commissioned Services.* [webpage] London: PSNC. *http://psnc.org.uk/sheffield-lpc/locally-commissioned-services/ccg-locally-commissioned-services/* Accessed 22 September 2017.

Cortis, L. J. McKinnon, R. A. and Anderson, C. (2013) Palliative Care Is Everyone's Business, Including Pharmacists. *American Journal of Pharmaceutical Education* 77 (2), 1-3.

CPS (2016) *Chemist and Druggist Award Finalist.* 26 May 2016. London: PSNC. *http://psnc.org.uk/sheffield-lpc/our-news/chemist-and-druggist-award-finalist-2016/* Accessed 22 September 2017.

Craig, P. Dieppe, P. Macintyre, S. Michie, S. Nazareth, I. and Petticrew, M. (2008) Developing and evaluating complex interventions: the new Medical Research Council guidance. *BMJ* 337 (a1655).

Crawford, G. B. (2008) Pharmacists needed as part of the palliative care team. *Australian Journal Pharmacy* 89 (2), 24.

Creswell, J. and Plano Clark, V. (2011) *Designing and conducting mixed methods research.* 2nd edition. Thousand Oaks, CA: Sage.

Creswell, J. W. (2003) *Research design: qualitative, quantitative, and mixed methods approaches.* 2nd edition. Thousand Oaks, CA: Sage.

Creswell, J. W. (2007) *Qualitative inquiry and research design: choosing among five approaches.* 2nd edition. London: Sage.

Dabinett, G. McHugh, N. Squres, S. and Wallshaw, A. (2016) *State of Sheffield 2016.* Sheffield: Sheffield Hallam University. Accessed 8 January 2017.

Davies, J. Barber, N. and D., T. (2014) What do community pharmacists do?: results from a work sampling study in London. *International Journal of Pharmacy Practice* 22 (5), 309-318.

den Herder-van der Eerden, M. Hasselaar, J. Payne, S. Varey, S. Schwabe, S. Radbruch, L. Van Beek, K. Menten, J. Busa, C. Csikos, A. Vissers, K. and Groot, M. (2017) How continuity of care is experienced within the context of integrated palliative care: A qualitative study with patients and family caregivers in five European countries. *Palliative Medicine*, 269216317697898. *doi: 10.1177/0269216317697898* Accessed 26 September 2017.

Department of Health (DH) (2008a) *End of Life Care Strategy promoting high quality care for all adults at the end of life.* London: DH.

Department of Health (DH) (2008b) *Pharmacy in England Building on strengths - delivering the future.* London: DH.

DH (2005) *The new contractrual framework for community pharmacy.* London: DH. *http://webarchive.nationalarchives.gov.uk/20050104110019/http://www.dh.gov.uk/PublicationsAndStatistics/Publications/PublicationsPolicyAndGuidance/PublicationsPAmpGBrowsableDocument/fs/en?CONTENT_ID=4092001&MULTIPAGE_ID=4821420&chk=CBabnG* Accessed 16 September 2017.

The Controlled Drugs (Supervision of Management and Use) Regulations (no longer in use) 2006 England & Scotland: The Stationery Office. *http://www.legislation.gov.uk/uksi/2006/3148/contents/made.*

DH (2013) *The Pharmaceutical Services (Advanced and Enhanced Services) (England) Directions.* London: DH. *https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/193012/2013-03-12_-_Advanced_and_Enhanced_Directions_2013_e-sig.pdf* Accessed 21 September 2017.

DH (2016) *Community pharmacy in 2016/17 and beyond.* London: DH. *www.gov.uk/government/uploads/system/uploads/attachment_data/file/561495/Community_pharmacy_package_A.pdf* Accessed 21 September 2017.

Evans, A. M. Wood, F. C. and Carter, B. (2016) National community pharmacy NHS influenza vaccination service in Wales: a primary care mixed methods study. *British Journal of General Practice* 66 (645), e248-e257.

Evans, B.C. Coon, D.W. and Ume, E. (2011) Use of theoretical frameworks as a pragmatic guide for mixed methods studies: a methodological necessity? *Journal of Mixed Methods Research* 5(4), 276-292.

Faull, C. Windridge, K. Ockleford, E. and Hudson, M. (2013) Anticipatory prescribing in terminal care at home: what challenges do community

health professionals encounter? *BMJ Supportive & Palliative Care* 3 (1), 91-97.

Fordham, F. T. and Noble, B. (2016) What is in a name? Evidence of impact in palliative and end-of-life care in the 2014 REF is difficult to find. *BMJ Supportive & Palliative Care* 6, 248-250.

Freedman, S. (2016) *Cancer Support for Community Pharmacies.* [Presentation] 13 September 2016. Sheffield: NHS Sheffield CCG. *http://www.intranet.sheffieldccg.nhs.uk/Downloads/Medicines%20Management/Community%20Pharmacy/LWABC/LWABC_Presentation_LPC_130916.pdf.*

Gale, N. K. Heath, G. Cameron, E. Rashid, S. and Redwood, S. (2013) Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology* 13, 117-117.

Gallagher, R. M. and Gallagher, H. C. (2012) Improving the working relationship between doctors and pharmacists: is inter-professional education the answer? *Advances in Health Sciences Education* 17 (2), 247-257.

Gandy, R. and Wilford, S. (2012) End of life services: public and patient involvement. *British Journal of Healthcare Management* 18 (3), 144-151.

Gardiner, C. Gott, M. and Ingleton, C. (2012a) Factors supporting good partnership working between generalist and specialist palliative care services: a systematic review. *The British Journal of General Practice* 62 (598), e353.

Gardiner, C. Gott, M. Ingleton, C. Hughes, P. Winslow, M. and Bennett, M. I. (2012b) Attitudes of health care professionals to opioid prescribing in end-of-life care: a qualitative focus group study. *Journal of pain and symptom management* 44 (2), 206-214.

Gidman, W. Ward, P. and McGregor, L. (2012) Understanding public trust in services provided by community pharmacists relative to those provided by general practitioners: a qualitative study. *BMJ Open* 2.

Gilbar, P. and Stefaniuk, S. (2002) The role of the pharmacist in palliative care: results of a survey conducted in Australia and Canada. *Journal of Palliative Care* 18 (4), 287- 292.

Gilbert, G. N. (2008) *Researching social life.* 3rd edition. London: Sage.

Goldsmith, J. Wittenberg-Lyles, E. Rodriguez, D. and Sanchez-Reilly, S. (2010) Interdisciplinary Geriatric and Palliative Care Team Narratives: Collaboration Practices and Barriers. *Qualitative Health Research* 20 (1), 93-104.

Gomes, B. Higginson, I. J. Calanzani, N. Cohen, J. Deliens, L. Daveson, B. A. Bechinger-English, D. Bausewein, C. Ferreira, P. L. Toscani, F. Meñaca, A. Gysels, M. Ceulemans, L. Simon, S. T. Pasman, H. R. W. Albers, G. Hall, S. Murtagh, F. E. M. Haugen, D. F. Downing, J. Koffman, J. Pettenati, F. Finetti, S. Antunes, B. and Harding, R. (2012) Preferences for place of death if faced with advanced cancer: a population survey in England, Flanders, Germany, Italy, the Netherlands, Portugal and Spain. *Annals of Oncology* 23 (8), 2006-2015.

Gott, M. Gardiner, C. Small, N. Payne, S. Seamark, D. Halpin, D. Ruse, C. and Barnes, S. (2010) The effect of the Shipman murders on clinician attitudes to prescribing opiates for dyspnoea in end-stage chronic obstructive pulmonary disease in England. *Progress in Palliative Care* 18 (2), 79-84.

Graham, F. and Clark, D. (2008) WHO definition of palliative care. *Medicine* 2, 64-66.

Grant, M. J. and Booth, A. (2009) A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal* 26 (2), 91-108.

Hall, C. (2006) Drug shortage leaves dying patients in pain. *The Telegraph*, 24 July 2006, sec. News, *www.telegraph.co.uk/news/1524667/Drug-shortage-leaves-dying-patients-in-pain.html* Accessed 26 September 2017.

Hardy, M. A. and Bryman, A. (2004) *Handbook of data analysis.* London: Sage.

Harper, D. and Thompson, A. R. (2012) *Qualitative research methods in mental health and psychotherapy : a guide for students and practitioners.* Oxford: Wiley-Blackwell.

Hearn, J. and Higginson, I. J. (1998) Do specialist palliative care teams improve outcomes for cancer patients? A systematic literature review. *Palliative Medicine* 12 (5), 317-332.

Hernandez-Torres, D. (2004) Role of the clinical pharmacist in an interdisciplinary palliative/supportive care team. *ASHP Midyear Clinical Meeting* 39 (Dec), P394D.

Herndon, C. M. Nee, D. Atayee, R. S. Craig, D. S. Lehn, J. Moore, P. S. Nesbit, S. A. Ray, J. B. Scullion, B. F. Wahler, R. G. Jr. and Waldfogel, J. (2016) ASHP Guidelines on the Pharmacist's Role in Palliative and Hospice Care. *American Journal of Health-System Pharmacy* 73 (17), 1351-67.

Higgins, J. and Green, S. (2011) *Cochrane Handbook for Systematic Reviews of Interventions* London: The Cochrane Collaboration. *Available from www.handbook.cochrane.org* Accessed 23 September 2017.

Higginson, I. J. and Sen-Gupta, G. (2000) Place of care in advanced cancer: a qualitative systematic literature review of patient preferences. *Journal of Palliative Medicine* 3 (3), 287-300.

Hill, R. R. (2007) Clinical pharmacy services in a home - based palliative care program. *American Journal Health-System Pharmacy* 64, 1-8.

Holliday, A. (2016) *Doing & writing qualitative research.* Third edition. Thousand Oaks; CA: Sage.

Home Office (2015a) *Circular 019/2015: Misuse of Drugs (Amendment No. 2) (England, Wales and Scotland) Regulations 2015 (S.I. 2015/891)* - GOV.UK. London: UK Government.

Home Office (2015b) Circular 019/2015: Misuse of Drugs (Amendment No. 2) (England, Wales and Scotland) Regulations 2015 (S.I. 2015/891) - GOV.UK. London: UK Government.

HRA (no date) *Is my study research?* [webpage] HRA. *http://www.hra-decisiontools.org.uk/research/index.html* Accessed 23 September 2017.

Hughes-Hallet, T. Cradft, A. Davies, C. Mackay, I. and Nielsson, T. (2011) *Palliative Care Funding Review - Creating a Fair & Transparent Funding System; the Final Report of the Palliative Care Funding Review.*

Hughes, C. M. and McCann, S. (2003) Perceived interprofessional barriers between community pharmacists and general practitioners: a qualitative assessment. *The British Journal of General Practice* 53 (493), 600.

Hussainy, S. Y. Beattie, J. Nation, R. L. Dooley, M. J. Fleming, J. Wein, S. Pisasale, M. Scott, W. J. and Marriott, J. L. (2006) Palliative care for patients with cancer: what are the educational needs of community pharmacists? *Supportive Care In Cancer: Official Journal Of The*

Multinational Association Of Supportive Care In Cancer 14 (2), 177-184.

Hussainy, S. Y. Box, M. and Scholes, S. (2011) Piloting the role of a pharmacist in a community palliative care multidisciplinary team: an Australian experience. *BMC Palliative Care* 10 (1), 16.

Hussainy, S. Y. Marriott, J. L. Beattie, J. Nation, R. L. and Dooley, M. J. (2010) A palliative cancer care flexible education program for Australian community pharmacists. *American Journal Of Pharmaceutical Education* 74 (2), 24-24.

Inch, J. Notman, F. Watson, M. Green, D. Baird, R. Ferguson, J. Hind, C. McKinstry, B. Strath, A. Bond, C. and the Telepharmacy Research Team (2017) Tele-pharmacy in rural Scotland: a proof of concept study. *International Journal of Pharmacy Practice* 25 (3), 210-219.

INVOLVE (2014) *Evidence - Bibliography 5 References on public involvement in NHS, public, health and social care research.* London: National Institute for Healthcare Research. *http://www.involve.nihr.ac.uk/resource-centre/evidence-library* Accessed 23 September 2017.

Ise, Y. Morita, T. Maehori, N. Kutsuwa, M. Shiokawa, M. and Kizawa, Y. (2010) Role of the Community Pharmacy in Palliative Care: A Nationwide Survey in Japan. *Journal of Palliative Medicine* 13 (6), 733-737.

Jiwa, M. Sriram, D. Khadaroo, Z. and Ping-Delfos, W. C. S. (2011) Could community pharmacies offer an opportunity to improve outcomes for patients with bowel cancer? *Quality in Primary Care* 19 (2), 105-108.

Jiwa, M. O'Connor, M. Hughes, J. Fisher, C. Mullan, J. Girgis, A. Davidson, P. Wilkinson, A. and Halkett, G. (no date) *The Role of the Pharmacist in the Provision of Palliative Care.* [Research report]. Australia: *http://6cpa.com.au/wp-content/uploads/The-Role-of-the-Pharmacist-in-*

the-Provision-of-Palliative-Care-Full-Final-Report1.pdf Accessed 22 July 2017.

Johnson, R. and Turner, L. (2003) Data collection strategies in mixed methods research. In Tashakkori, A. and Teddlie, C. (editors) *Handbook of mixed methods in social & behavioral research.* London: Sage. 297-320

Jorgenson, D. Laubscher, T. Lyons, B. and Palmer, R. (2014) Integrating pharmacists into primary care teams: barriers and facilitators. *International Journal of Pharmacy Practice* 22 (4), 292-299.

Jov, A. M. Fernndez, A. Hughes, C. Guilln-Sol, M. Rovira, M. and Rubio-Valera, M. (2014) Perceptions of collaboration between general practitioners and community pharmacists: findings from a qualitative study based in Spain. *Journal of Interprofessional Care* 28 (4), 352-357.

Joyce, B. T. Berman, R. and Lau, D. T. (2014) Formal and informal support of family caregivers managing medications for patients who receive end-of-life care at home: A cross-sectional survey of caregivers. *Palliative Medicine* 28 (9), 1146-1155.

Kaae, S. and Traulsen, J. M. (2015) Qualitative Methods in Pharmacy Practice Research In Babar, Z.-U.-D. (editor) *Pharmacy Practice Research Methods.* Springer. 49-68 *https://www.dawsonera.com:443/abstract/9783319146720* Accessed 24 September 2017.

Kelly, S. (2016) *Evaluation of the Sheffield Enhanced Primary Care Programme final report (draft for consultation).* Sheffield: Sheffield Hallam University. *http://www.primarycaresheffield.org.uk/wp-content/uploads/2017/05/Evaluation-SEPCP-Final_Report_v13_3.pdf* Accessed 22 September 2017.

Knight, P. T. (2002) *Small-scale research: pragmatic inquiry in social science and the caring professions.* 1st edition. London: Sage.

Kripalani, S. LeFevre, F. Phillips, C. O. Williams, M. V. Basaviah, P. and Baker, D. W. (2007) Deficits in communication and information transfer between hospital-based and primary care physicians: Implications for patient safety and continuity of care. *JAMA* 297 (8), 831-841.

Latif, A. (2012) *Medicines Use Reviews (MURs): a case study in two community pharmacies*. PhD Thesis. Nottingham: University of Nottingham. *http://eprints.nottingham.ac.uk/12374/2/Asam%27s_Thesis_Final_Verson_for_ethesis.pdf* Accessed 27 September 2017.

Latif, A. and Boardman, H. (2008) Community pharmacists' attitudes towards Medicines Use Reviews and factors affecting the numbers performed. *Pharmacy World & Science* 30, 526-35.

Latif, A. Boardman, H. F. and Pollock, K. (2013) A qualitative study exploring the impact and consequence of the medicines use review service on pharmacy support-staff. *Pharmacy Practice* 11 (2), 118-124.

Latif, A. Pollock, K. and Boardman, H. F. (2011) The contribution of the Medicines Use Review (MUR) consultation to counseling practice in community pharmacies. *Patient Education and Counseling* 83 (3), 336-344.

Lim, C. T. Tadmor, A. Fujisawa, D. MacDonald, J. J. Gallagher, E. R. Eusebio, J. Jackson, V. A. Temel, J. S. Greer, J. A. Hagan, T. and Park, E. R. (2017) Qualitative Research in Palliative Care: Applications to Clinical Trials Work. *Journal of Palliative Medicine* 20 (8), 857-861.

Lincoln, Y. S. and Guba, E. G. (1985) *Naturalistic inquiry.* London: Sage.

Loader, J. (2014) *Community Pharmacy - helping provide better quality and resilient urgent care.* London: NHS England.

Lucey, M. McQuillan, R. MacCallion, A. Corrigan, M. Flynn, J. and Connaire, K. (2008) Access to medications in the community by patients in a palliative setting. A systems analysis. *Palliative Medicine* 22 (2), 185-189.

MacRobbie, A. Addie, S. and Grant, E. (2009) *The Pharmacist in Palliative Care*. 3rd edition. Scotland, NHS Education for Scotland.

MacRobbie, A. Harrington, G. Bennie, M. Akram, G. Newham, R. and Corcoran, E. D. (2015) *Macmillan Rural Palliative Care Pharmacist Practitioner Project Phase 2 Report January 2015.* University of Strathclyde. *http://www.macmillan.org.uk/Aboutus/Healthandsocialcareprofessionals/Newsandupdates/MacVoice/Summer2014/Ruralpharmacysupport.aspx.*

Mason, J. (2002) *Qualitative researching.* 2nd edition*.* London: Sage.

Mays, N. and Pope, C. (2000) Qualitative research in health care: Assessing quality in qualitative research. *BMJ* 320, 50 - 52.

McCracken, C. and Dole, E. (2004) Pharmacist's role in hospice and palliative care. *ASHP Midyear Clinical Meeting* 39 (Dec), P92D.

Meier, D. E. and Beresford, L. (2008) The palliative care team. *Journal of Palliative Medicine* 11 (5), 677.

Mellor, K. (2014) The community Macmillan pharmacist project. *Prescriber* 25 (19), 32-35.

Micallef, R. Kayyali, R. and Shamim, A. (2017) Multidisciplinary preregistration training is the way forward. *The Pharmaceutical Journal* 298 (7900 DOI: 10.1211/PJ.2017.20202086).

Michie, S. Johnston, M. Abraham, C. Lawton, R. Parker, D. Walker, A. and Psychological Theory, G. (2005) Making psychological theory useful for implementing evidence based practice: a consensus approach. *Quality & Safety in Health Care* 14 (1), 26-33.

Michie, S. van Stralen, M. M. and West, R. (2011) The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation science* 6 (1), 42.

Miles, M. B. and Huberman, A. M. (1994) *Qualitative data analysis: an expanded sourcebook.* 2nd edition. London: Sage.

Mitchell, S. (2016) The View from the Shop—Antitrust and the Decline of America's Independent Businesses. *The Antitrust Bulletin* 61 (4), 498-516.

Moher, D. Liberati, A. Tetzlaff, J. and Altman, D. G. (2009) Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *BMJ* 339 (b2535).

Morse, J. M. (1991) *Qualitative nursing research: a contemporary dialogue.* Revised edition. London: Sage.

Moustakas, C. (1994) *Phenomenological research methods.* London: Sage.

Mundasad, S. B. N. (2016) Many High Street pharmacies in England face closure, says minister. *BBC*, 27 January 2016, sec. Health, *http://www.bbc.co.uk/news/health-35418556* Accessed 27 September 2017

Murray, R. (2016) *Community Pharmacy Clinical Services Review.* London: The Kings Fund.

Murray, S. A. Kendall, M. Boyd, K. and Sheikh, A. (2005) Illness trajectories and palliative care. *BMJ* 330 (7498), 1007.

Nash, A. and Fitzpatrick, J. M. (2015) Views and experiences of nurses and health-care assistants in nursing care homes about the Gold Standards Framework. *International Journal of Palliative Nursing* 21 (1), 35-41.

Needham, D. S. (2002) Evaluation of the effectiveness of UK community pharmicists' interventions in community palliative care. *Palliative Medicine* 16 (3).

NHS Digital (2015) *Summary Care Record rolled out to community pharmacists.* [webpage] 23 June 2015. Leeds: NHS Digital. *http://content.digital.nhs.uk/article/6476/Summary-Care-Record-rolled-out-to-community-pharmacists* Accessed 22 September 2017.

NHS Digital (2016) *General Pharmaceutical Services in England 2006/7 to 2015/16 [NS]*. London, NHS Digital.

NHS England (2015) *About wave 2 pilots: An enhanced integrated primary care model for Sheffield.* London: NHS England. *https://www.england.nhs.uk/gp/gpfv/redesign/improving-access/gp-access-fund/wave-two/pilots/#3* Accessed 22 September 2017.

NHS England (2016) *Commissioning person centred end of life care - A toolkit for health and social care* London: NHS England.

NHS England (2017a) *Estates and Technology Transformation Fund.* [webpage] London: NHS England. *https://www.england.nhs.uk/gp/gpfv/infrastructure/estates-technology/* Accessed 25 September 2017.

NHS England (2017b) *Up to six million people set to benefit from more clinical pharmacists in GP surgeries*. London, NHS England.

NHS England, CQC, Health Education England, Monitor, Public Health England, Trust Development Authority, (2014) *Five Year Forward*

View. London: NHS England. *www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf* Accessed 21 September 2017.

NHS Greater Glasglow and Clyde (NHSGG&C) Governance Team (2009) Community pharmacy audit on controlled drug prescribing. Cited in Stuart (2003): University of Strathclyde.

NHS Sheffield CCG (2016) *Living with and beyond cancer: LWABC monographs and guidance.* Sheffield: NHS Sheffield CCG. *http://www.intranet.sheffieldccg.nhs.uk/Medicines%20Management/medicines-prescribing/living-with-and-beyond-cancer.htm* Accessed 25 September 2017.

NHSBSA (2014) *Electronic Prescribing and Cost Analysis (ePACT) November 2013 to October 2014*. Newcastle, NHSBSA.

NHSBSA (2015) *Electronic Prescription Analysis and Cost (ePACT) Septemver 2014 to August 2015*. Newcastle, NHSBSA.

NICE (2004) *Improving supportive and palliative care for adults with cancer. The manual.* London: NICE.

NICE (2015) *Care of dying adults in the last days of life [NG31].* London: NICE. *https://www.nice.org.uk/guidance/ng31* Accessed 16 September 2017.

NICE (2016) *Palliative care for adults: strong opioids for pain relief [NG46].* London: NICE. *https://www.nice.org.uk/guidance/cg140* Accessed 16 September 2017.

NICE (2017a) *Care of dying adults in the last days of life [QS144].* London: NICE *https://www.nice.org.uk/guidance/qs144* Accessed 16 September 2017.

NICE (2017b) *End of Life Care for Adults [QS13].* London: NICE. *https://www.nice.org.uk/guidance/service-delivery--organisation-and-staffing/end-of-life-care* Accessed 16 September 2017.

Norrström, B. Cannerfelt, I.B. Frid, H. Roos, K. and Ramström, H. (2010) Introduction of pharmaceutical expertise in a palliative care team in Sweden. *Pharmacy World & Science* 32 (6), 829-834.

O'Connor, M. Fisher, C. French, L. Halkett, G. Jiwa, M. and Hughes, J. (2011a) Exploring the community pharmacist's role in palliative care: focusing on the person not just the prescription. *Patient Education And Counseling* 83 (3), 458-464.

O'Connor, M. Hewitt, L. Y. and Tuffin, P. H. R. (2013) Community Pharmacists' Attitudes Toward Palliative Care: An Australian Nationwide Survey. *Journal of Palliative Medicine* 16 (12), 1575-1581.

O'Connor, M. Pugh, J. Jiwa, M. Hughes, J. and Fisher, C. (2011b) The palliative care interdisciplinary team: where is the community pharmacist? *Journal of Palliative Medicine* 14 (1), 7-11.

Office for National Statistics (ONS), V. S. O. B., Office for National Statistics (2017) *Deaths registered in England and Wales: 2016*. London, ONS.

Oishi, A. and Murtagh, F. E. (2014) The challenges of uncertainty and interprofessional collaboration in palliative care for non-cancer patients in the community: A systematic review of views from patients, carers and health-care professionals. *Palliative Medicine* 28 (9), 1081-1098.

ONS (2011) *2011 Census data*. 27 March 2011 edition. London, ONS.

ONS (2014a) *Deaths by Primary Care Trust of usual residence, by place of occurrence, numbers and percentages, 2012*. London, ONS.

ONS (2014b) *Place of death by CCG*. London, ONS.

ONS (2016) *2014-based national population projections table of contents*. London, ONS.

Pawłowska, I. Pawłowski, L. and Lichodziejewska-Niemierko, M. (2016) The role of a pharmacist in a hospice: a nationwide survey among hospice

directors, pharmacists and physicians. *European Journal of Hospital Pharmacy* 23 (2), 106-112.

Payne, S. Turner, M. Seamark, D. Thomas, C. Brearley, S. Wang, X. Blake, S. and Milligan, C. (2015) Managing end of life medications at home—accounts of bereaved family carers: a qualitative interview study. *BMJ Supportive & Palliative Care* 5 (2), 181-188.

Perdew, C. Erickson, K. and Litke, J. (2017) Innovative models for providing clinical pharmacy services to remote locations using clinical video telehealth. *American Journal of Health-System Pharmacy* 74 (14), 1093-1098.

Pharmaceutical Needs Assessment Steering Group (2015) *Sheffield Pharmaceutical Needs Assessment 2015-18.* Sheffield: Sheffield City Council. Ref2015(03)PHIT. *https://www.sheffield.gov.uk/content/dam/sheffield/docs/public-health/publichealthstrategyandreports/Pharmaceutical%20Needs%20Assessment%202015.pdf* Accessed 17 September 2017.

Pharmaceutical Services Negotiating Committee (PSNC) (2017) *Quality payments - NHS choices entry.* [webpage] London: PSNC. *http://psnc.org.uk/services-commissioning/essential-services/quality-payments-nhs-choices-entry/* Accessed 16 September 2017.

Prescribing and primary care Health and Social Care Infomation Centre (HSCIC) (2014) *Prescriptions dispensed in the community England 2003-2013.* London: HSCIC.

Primary Care Sheffield (PCS) (2016) *Sheffield pharmacy scheme wins national award.* [webpage] Sheffield: PCS. *http://www.primarycaresheffield.org.uk/news/page/3/* Accessed 27 September 2017.

Pruskowski, J. (2017) The Role of Clinical Pharmacists on the Interdisciplinary Team #334. *Journal of Palliative Medicine* 20 (8), 897-899.

PSNC (2015) *SCR Implementation -background: Pilot study.* [webpage] no date. London: PSNC. *http://psnc.org.uk/contract-it/pharmacy-it/electronic-health-records/summary-care-record-scr-home/preparing-for-scr/scr-implementation/* Accessed 22 September 2017.

PSNC (2017a) *Advanced services.* [webpage] London: PSNC. *http://psnc.org.uk/services-commissioning/advanced-services/* Accessed 17 September 2017.

PSNC (2017b) *PSNC online services database.* [Spreadsheet] September 2017. London: PSNC. *http://psnc.org.uk/services-commissioning/services-database/* Accessed 25 September 2017.

PSNC, DH, NHS Employers (2005) *On demand availability of specialist drugs template service specification.* [webpage] London: PSNC. *http://psnc.org.uk/wp-content/uploads/2013/07/en3.doc* Accessed 16 September 2017.

Public Health England (PHE) and Local Government Association (2016) *The community pharmacy offer for improving the public's health: a briefing for local government and health and wellbeing boards.* Sheffield: PHE.

Ramsbottom, H. F. Fitzpatrick, R. and Rutter, P. (2016) Post discharge medicines use review service for older patients: recruitment issues in a feasibility study. *International Journal of Clinical Pharmacy* 38 (2), 208-212.

Research Councils UK (2014) *About researchfish* [webpage] Swindon: Research Councils UK. *http://www.rcuk.ac.uk/research/researchoutcomes/researchfish/* Accessed 27 September 2017.

Rice, P. and Ezzy, D. (1999) *Qualitative research methods.* Oxford: Oxford University Press.

Ritchie, J. Lewis, J. Nicholls, C. M. and Ormston, R. (2014) *Qualitative research practice: A guide for social science students and researchers.* London: Sage.

Robson, C. (2002) *Real world research: a resource for social scientists and practitioner-researchers.* 2nd edition*.* Oxford: Blackwell.

Rosenbloom, K. and Graham, J. (2008) A review of the implementation of medicinesuse reviews in Hertfordshire: findings ofsurveys conducted in 2006 and 2008. *International Journal of Pharmacy Practice* Suppl 3, C48-49.

Royal Pharmaceutical Society (RPS) Wales (2014) *Your Care, Your Medicines: Pharmacy at the heart of patient-centred care, Royal Pharmaceutical Society* Wales, RPS.

RPS and RCGP (2011) *Joint Statement Breaking down the barriers - how community pharmacists and GPs can work together to improve patient care*. London, RPS.

RPS England (2016) *Improving care for people with long term conditions.* London: RPS.

RPS Faculty (2013) *Palliative Care (Adults) Professional Curriculum: Supporting Expert Professional Practice.* London: RPS.

RPS Wales (2014) *Patient interactions with pharmacy along their care journey*. Cardiff, RPS Wales.

RPS Wales (2016) *Your Care, Your Medicines: Pharmacy at the heart of patient-centred care.* Cardiff: RPS Wales.

RPSGB (2017) *Research Ready Handbook.* London: RPSGB. *https://www.rpharms.com/Portals/0/RPS%20document%20library/Ope*

n%20access/Research/Research%20Ready%20Handbook.pdf?ver=2017-04-25-114818-767 Accessed 23 September 2017.

Savage, I. Blenkinsopp, A. Closs, S. J. and Bennett, M. I. (2012) 'Like doing a jigsaw with half the parts missing': community pharmacists and the management of cancer pain in the community. *The International Journal Of Pharmacy Practice* 21 (3), 151-160.

Savory, C. (2010) Patient and public involvement in translative healthcare research. *Clinical Governance: An International Journal* 15 (3), 191-199.

Scholes, S. (2010) Community palliative care teams. *Australian Journal of Pharmacy* 91 (1083), 34-34.

Schon, D. (1983) *The reflective practitioner.* New York, NY: Basic Books.

Schulz, K. F. Altman, D. G. and Moher, D. (2010) CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials. *BMJ* 340 (c332).

Schutz, A. (1972) Symbol Reality and Society. In Natanson, M. (editor) *Collected Papers I: The Problem of Social Reality.* Dordrecht: Springer Netherlands. 287-356 *https://doi.org/10.1007/978-94-010-2851-6_11*.

Seale, C. Gobo, G. Gubrium, J. F. and Silverman, D. (2004) *Qualitative research practice.* London: Sage.

Seymour, J. and Clark, D. (1998) Issues in research. Phenomenological approaches to palliative care research. *Palliative Medicine* 12 (2), 127-131.

Sheehy-Skeffington, B. McLean, S. Bramwell, M. O'Leary, N. and O'Gorman, A. (2014) Caregivers Experiences of Managing Medications for Palliative Care Patients at the End of Life: A Qualitative Study. *American Journal of Hospice and Palliative Medicine* 31 (2), 148-154.

Silverman, D. (2010) *Doing qualitative research: a practical handbook.* 3rd edition*.* London: Sage.

Smith, J. Picton, C. and Dayan, M. (2013) *Now or Never - Executive Summary: The Report of the Commission on future models of care delivered through pharmacy.* London: RPS. *https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Publications/Now%20or%20Never%20-%20Exec%20Summary.pdf* Accessed 17 September 2017.

Stotesbury, N. P. (2016) *Email to E. Miller about on demand access to palliative care drugs.* [personal communication] 12 July.

Strauss, A. L. and Corbin, J. M. (1998) *Basics of qualitative research: techniques and procedures for developing grounded theory.* 2nd edition*.* London: Sage.

Stuart, J. (2013) *Investigating the Prevalence and Nature of Controlled Drug Prescribing Errors identified in Community Pharmacies*. MSc. Glasgow: University of Strathclyde.

Stuart, J. (2016) *Email about MSc study investigating the prevalence and nature of CD prescribing errors identified in community pharmacies.* [personal communication] 30 November.

Svensberg, K. Kälvemark Sporrong, S. Håkonsen, H. and Toverud, E. L. (2015) 'Because of the circumstances, we cannot develop our role': Norwegian community pharmacists' perceived responsibility in role development. *International Journal of Pharmacy Practice* 23 (4), 256-265.

Swetenham, K. Rowett, D. and Stephenson, D. (2014) Clinical networks influencing policy and practice: the establishment of advanced practice pharmacist roles for specialist palliative care services in South Australia. *Australian Health Review* 38 (2), 238-241.

Tait, P. Morris, B. and To, T. (2014) Core palliative medicines: meeting the needs of non-complex community patients. *Australian Family Physician* 43 (1), 29-32.

Tait, P. and Swetenham, K. (2014) Forging an advanced practice role for pharmacists in palliative care. *Journal of Pharmacy Practice & Research* 44 (3), 120-124.

Tait, P. A. Gray, J. Hakendorf, P. Morris, B. Currow, D. C. and Rowett, D. S. (2013) Community pharmacists: a forgotten resource for palliative care. *BMJ Supportive & Palliative Care* 3 (4), 436-443.

Tashakkori, A. and Teddlie, C. (2003) *Handbook of mixed methods in social & behavioral research.* Los Angeles: Sage.

Teddlie, C. (2005) Methodological Issues Related to Causal Studies of Leadership. *Educational Management Administration & Leadership* 33 (2), 211.

Teddlie, C. and Tashakkori, A. (2009) *Foundations of mixed methods research: integrating quantitative and qualitative approaches in the social and behavioral sciences.* London: Sage.

Teddlie, C. and Yu, F. (2007) Mixed Methods Sampling: A Typology With Examples. *Journal of Mixed Methods Research* 1 (1), 77-100.

Temel, J. S. Greer, J. A. and Muzikansky, A. (2010) Early palliative care for patients with metastatic non-small-cell lung cancer. *New England Journal Medicine* 363, 733-42.

Thornley, T. Kirkdale, C. and Wright, D. (2017) Demonstrating value for the NHS: insight from the Community Pharmacy Future model. *Clinical Pharmacist* 9 (4), 122-127.

Todd, A. Copeland, A. Husband, A. Kasim, A. and Bambra, C. (2014) The positive pharmacy care law: an area-level analysis of the relationship

between community pharmacy distribution, urbanity and social deprivation in England. *BMJ Open* 4 (8), e005764.

Tsoneva, J. (2010) *Community Pharmacy Service Specification for Assured Availability of Palliative Care Drugs (Pilot Enhanced Service).* [service specification]. Sheffield: NHS Sheffield.

Tsoneva, J. (2011) *Evaluation of the Pilot for Assured Availability of Palliative Care Drugs from Community Pharmacy.* [Unpublished service evaluation]. Sheffield: NHS Sheffield.

UK Government (2017) *NHS Choices website.* [webpage] UK Government. *http://www.nhs.uk/pages/home.aspx* Accessed 16 September 2017.

UK Health Departments. (2011) *Governance arrangements for research ethics committees: a harmonised edition.* Research and Development Directorate (England), et al. Leeds: DH. *https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213753/dh_133993.pdf* Accessed 23 September 2017.

University of Bradford (2010) *Ethics Policy for research involving human participants, data and tissue.* [University policy]. Bradford: University of Bradford. *http://www.brad.ac.uk/rkts/documents-and-forms/policy/* Accessed 23 September 2017.

Urban, R. Rivers, P. and Morgan, J. (2008) Perceptions of medicines use reviews: the views of community pharmacists within a West Yorkshire primary care trust. *Pharmaceutical Journal* 281 (7519), 303-305.

Van, C. Costa, D. Abbott, P. Mitchell, B. and Krass, I. (2012) Community pharmacist attitudes towards collaboration with general practitioners: development and validation of a measure and a model. *BMC Health Services Research* 12 (1), 320-320.

Vivar, C. G. McQueen, A. Whyte, D. A. Armayor, N. C. (2007) Getting started with qualitative research: developing a research proposal. *Nurse Researcher* 14 (3), 60-73.

Walker, K. A. (2010) Role of the pharmacist in palliative care. *Progress in Palliative Care* 18 (3), 132-139.

Walker, K. A. Scarpaci, L. and McPherson, M. L. (2010b) Fifty reasons to love your palliative care pharmacist. *The American Journal Of Hospice & Palliative Care* 27 (8), 511-513.

Wall-Hayes, L. (2016) *Email to L. Miller about Medicines OOH.* [personal communication] 12 July.

While, A. Shah, R. and Nathan, A. (2005) Interdisciplinary working between community pharmacists and community nurses: the views of community pharmacists. *Journal of Interprofessional Care* 19 (2), 164-70.

WHO (2014) Global Atlas of Palliative Care at the End of Life. *WHO.* World Health Organization.

WHO (2016) *Palliative Care for Non-Communicable Diseases A Global Snapshot in 2015.* World Health Organisation.

Wilson, E. and Seymour, J. (2017) The importance of interdisciplinary communication in the process of anticipatory prescribing. *International Journal Of Palliative Nursing* 23 (3), 129-135.

Wilson, E. Seymour, J. Morbey, H. Payne, S. Brown, J. and Seale, C. (2014) Anticipatory prescribing in end-of-life care. *Nursing Times* 110 (44), 16-17.

Wilson, S. Wahler, R. Brown, J. Doloresco, F. and Monte, S. V. (2011a) Impact of pharmacist intervention on clinical outcomes in the palliative care setting. *American Journal of Hospice and Palliative Medicine* 28 (5), 316-20.

Wilson, S. Wahler, R. Brown, J. Doloresco, F. and Monte, S. V. (2011b) Impact of pharmacist intervention on clinical outcomes in the palliative care setting. *American Journal of Hospice & Palliative Medicine* 28 (5), 316-320.

Wowchuk, S. M. Wilson, E. A. Embleton, L. Garcia, M. Harlos, M. and Chochinov, H. M. (2009) The palliative medication kit: an effective way of extending care in the home for patients nearing death. *Journal of Palliative Medicine* 12 (9), 797.

Wright, M. Moran, S. and Doody, O. (2016) The Introduction of Patients Own Drug Scheme in a Specialist Palliative Care Inpatient Unit. *Journal of Hospice and Palliative Nursing* 16 (6), 536-543.